HISTORY OF CIVILIZATIONS OF CENTRAL ASIA

Volume IV

The age of achievement:

A.D. 750 to the end of the fifteenth century

Part Two: The achievements



UNESCO Publishing

History of civilizations of Central Asia – IV

History of civilizations of Central Asia

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A.D. 250 to 750

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A.D. 750 to the end of the fifteenth century
Part One
The historical, social and economic setting
Part Two
The achievements

Volume V
Development in contrast:
from the sixteenth to the mid-nineteenth century

Volume VI
Towards contemporary civilization:
from the mid-nineteenth century
to the present time

History of civilizations of Central Asia

Volume IV

The age of achievement:
A.D. 750 to the end of the fifteenth century

Part Two

The achievements

Editors: C. E. Bosworth
and the late M. S. Asimov

Multiple History Series

UNESCO Publishing

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Preface of the Director-General of UNESCO

One of the purposes of UNESCO, as proclaimed in its Constitution, is 'to develop and to increase the means of communication between . . . peoples and to employ these means for the purposes of mutual understanding and a truer and more perfect knowledge of each other's lives'. The *History of the Scientific and Cultural Development of Mankind*, published in 1968, was a major early response on the part of UNESCO to the task of enabling the peoples of the world to have a keener sense of their collective destiny by highlighting their individual contributions to the history of humanity. This universal history – itself now undergoing a fundamental revision – has been followed by a number of regional projects, including the *General History of Africa* and the planned volumes on Latin America, the Caribbean and on aspects of Islamic culture. The *History of Civilizations of Central Asia* is an integral part of this wider enterprise.

It is appropriate that the second of UNESCO's regional histories should be concerned with Central Asia. For, like Africa, Central Asia is a region whose cultural heritage has tended to be excluded from the main focus of historical attention. Yet from time immemorial the area has served as the generator of population movements within the Eurasian land-mass. The history of the ancient and medieval worlds, in particular, was shaped to an important extent by the succession of peoples that arose out of the steppe, desert, oases and mountain ranges of this vast area extending from the Caspian Sea to the high plateaux of Mongolia. From the Cimmerians mentioned in Homer's *Odyssey*, the Scythians described by Herodotus, the Hsiung-nu whose incursions led the emperors of China to build the Great Wall, the sixth-century Türks who extended their empire to the boundaries of Byzantium, the Kitan who gave their name to ancient Cathay, through to the Mongols who erupted into world history in the thirteenth century under Genghis Khan, the nomadic horsemen of Central Asia helped to define the limits and test the mettle of the great civilizations of Europe and Asia.

Nor is it sufficient to identify the peoples of Central Asia simply with nomadic cultures. This is to ignore the complex symbiosis within Central Asia itself between nomadism and settlement, between pastoralists and agriculturalists. It is to overlook above all the burgeoning of the great cities of Central Asia such as Samarkand, Bukhara and Khiva, which established themselves in the late Middle Ages as outstanding centres of intellectual inquiry and artistic creation. The seminal writings of the philosopher-scientist Avicenna (a native of Bukhara) and the timeless masterpieces of Timurid architecture epitomize the flowering of medieval culture in the steppes and deserts of Central Asia.

The civilizations of Central Asia did not, of course, develop in a vacuum. The impact of Islam was pervasive and fundamental. The great civilizations on the periphery of the Eurasian continent likewise exerted an important influence on these lands. For some 1,500 years this arid inland sea – far removed from the earth's true oceans – was crucial as the route along which merchandise (notably silk) and ideas flowed between China, India, Iran and Europe. The influence of Iran – although the core of its civilization lies in South-West Asia – was particularly strong, to the extent that it is sometimes difficult to establish a clear boundary between the civilization of the Iranian motherland and that of the outlying lands of Central Asia.

To the rich variety of peoples of Central Asia was thus added a multiplicity of external influences. For century after century, the region experienced the influx of foreign art and ideas, colliding and merging with the indigenous patterns of Central Asia. Migrations and the recurrent shock of military invasion, mingling and displacing peoples and cultures, combined to maintain the vast region in flux.

The systole and diastole of population movements down the ages add to the difficulty of delimiting a region whose topology alone does not prescribe clear boundaries. Thus, when, at the nineteenth session of its General Conference, UNESCO decided to embark on a *History of Civilizations of Central Asia* the first problem to be resolved was to define the scope of the region concerned. Subsequently, at a UNESCO meeting held in 1978, it was agreed that the study on Central Asia should deal with the civilizations of Afghanistan, north-eastern Iran, Pakistan, northern India, western China, Mongolia and the former Soviet Central Asian republics. The appellation 'Central Asia', as employed in this *History*, refers to this area, which corresponds to a clearly discernible cultural and historical reality.

UNESCO's call to specialists, and particularly to scholars native to the region, to participate in the undertaking met with a wide and generous response. The project was deemed by academics to be an excellent opportunity to draw back the curtain that had veiled Central Asia for so long. However, none were in any doubt as to the huge dimensions of the task.

An ad hoc International Scientific Committee was formed in 1980 to plan and prepare the work, which it was agreed should cover, in six volumes, the

history of Central Asia from earliest times to the present day. The Committee's initial task was to decide where pre-eminence should be given in the very wide canvas before it. In due course, a proper balance was struck and teams of editors and authors were selected.

The preparation of the *History of Civilizations of Central Asia* is now well advanced. The best resources of research and archaeology have been used to make the work as thorough as possible, and countless annals consulted in major centres throughout the region. It is UNESCO's sincere wish that this, Part Two of the fourth volume, and those that follow will bring instruction and pleasure to readers all over the world.

It remains for us to thank the President, Rapporteur and members of the International Scientific Committee, and the editors, authors and teams of specialists who have collaborated to shed new light on Central Asia with this detailed account of its vital and stirring past. We are sure it will prove a notable contribution to the study and mutual appreciation of the cultures that are the common heritage of mankind.

CONTENTS

Description of the Project

M. S. Asimov

The General Conference of UNESCO, at its nineteenth session (Nairobi, October, November 1976), adopted the resolution which authorized the Director-General to undertake, among other activities aimed at promoting appreciation and respect for cultural identity, a new project on the preparation of a *History of Civilizations of Central Asia.* This project was a natural consequence of a pilot project on the study of Central Asia which was approved during the fourteenth session of the UNESCO General Conference in November 1966.

The purpose of this pilot project, as it was formulated in the UNESCO programme, was to make better known the civilizations of the peoples living in the regions of Central Asia through studies of their archaeology, history, languages and literature. At its initial stage, the participating Member States included Afghanistan, India, Iran, Pakistan and the former Soviet Union. Later, Mongolia and China joined the UNESCO Central Asian project, thus enlarging the area to cover the cultures of Mongolia and the western regions of China.

In this work, Central Asia should be understood as a cultural entity developed in the course of the long history of civilizations of peoples of the region and the above delimitation should not be taken as rigid boundaries either now or in the future.

In the absence of any existing survey of such large scope which could have served as a model, UNESCO has had to proceed by stages in this difficult task of presenting an integrated narrative of complex historical events from earliest times to the present day.

The first stage was designed to obtain better knowledge of the civilizations of Central Asia by encouraging archaeological and historical research and the study of literature and the history of science. A new project was therefore launched to promote studies in five major domains: the archaeology and the history of the Kushan empire, the history of the arts of Central Asia,

the contribution of the peoples of Central Asia to the development of science, the history of ideas and philosophy, and the literatures of Central Asia.

An International Association for the Study of Cultures of Central Asia (IASCCA), a non-governmental scholarly organization, was founded on the initiative of the Tajik scholar B. Gafurov in 1973, assembling scholars of the area for the co-ordination of interdisciplinary studies of their own cultures and the promotion of regional and international co-operation.

Created under the auspices of UNESCO, the new Association became, from the very beginning of its activity, the principal consultative body of UNESCO in the implementation of its programme on the study of Central Asian cultures and the preparation of a *History of Civilizations of Central Asia.*

The second stage concentrated on the modern aspects of Central Asian civilizations and the eastward extension of the geographical boundaries of research in the new programme. A series of international scholarly conferences and symposia were organized in the countries of the area to promote studies on Central Asian cultures.

Two meetings of experts, held in 1978 and 1979 at UNESCO Headquarters, concluded that the project launched in 1967 for the study of cultures of Central Asia had led to considerable progress in research and contributed to strengthening existing institutions in the countries of the region. The experts consequently advised the Secretariat on the methodology and the preparation of the *History.* On the basis of its recommendations it was decided that this publication should consist of six volumes covering chronologically the whole history of Central Asian civilizations ranging from their very inception up to the present. Furthermore, the experts recommended that the experience acquired by UNESCO during the preparation of the *History of the Scientific and Cultural Development of Mankind* and of the *General History of Africa* should also be taken into account by those responsible for the drafting of the *History.* As to its presentation, they supported the opinion expressed by the UNESCO Secretariat that the publication, while being a scholarly work, should be accessible to a general readership.

Since history constitutes an uninterrupted sequence of events, it was decided not to give undue emphasis to any specific date. Events preceding or subsequent to those indicated here are dealt with in each volume whenever their inclusion is justified by the requirements of scholarship.

The third and final stage consisted of setting up in August 1980 an International Scientific Committee of nineteen members, who sat in a personal capacity, to take reponsibility for the preparation of the *History.* The Committee thus created included two scholars from each of the seven Central Asian countries – Afghanistan, China, India, Islamic Republic of Iran, Pakistan, Mongolia and what was then the USSR – and five experts from other countries – Hungary, Japan, Turkey, the United Kingdom and the United States of America.

The Committee's first session was held at UNESCO Headquarters in December 1980. Real work on the preparation of the publication of the *History of Civilizations of Central Asia* started, in fact, in 1981. It was decided that scholars selected by virtue of their qualifications and achievements relating to Central Asian history and culture should ensure the objective presentation, and also the high scientific and intellectual standard, of this *History*.

Members of the International Scientific Committee decided that the new project should correspond to the noble aims and principles of UNESCO and thereby should contribute to the promotion of mutual understanding and peace between nations. The Committee followed the recommendation of the experts delineating for the purpose of this work the geographical area of Central Asia to reflect the common historical and cultural experience.

The first session of the International Committee decided most of the principal matters concerning the implementation of this complex project, beginning with the drafting of plans and defining the objectives and methods of work of the Committee itself.

The Bureau of the International Scientific Committee consists of a president, four vice-presidents and a rapporteur. The Bureau's task is to supervise the execution of the project between the sessions of the International Scientific Committee. The reading committee, consisting of four members, was created in 1986 to revise and finalize the manuscripts after editing Volumes I and II. Another reading committee was constituted in 1989 for Volumes III and IV.

The authors and editors are scholars from the present twelve countries of Central Asia and experts from other regions. Thus, this work is the result of the regional and of the international collaboration of scholars within the framework of the programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The International Scientific Committee and myself express particular gratitude to Mrs Irene Iskender-Mochiri for her arduous and selfless work in preparing the volumes for the press.

It is our sincere hope that the publication of the fourth volume of the *History of Civilizations of Central Asia* will be a further step towards the promotion of the cultural identity of the peoples of Central Asia, strengthening their common cultural heritage and, consequently, will foster a better understanding among the peoples of the world.

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NOTE ON TRANSLITERATION AND STYLE FOR NAMES

The system of transliteration followed for Arabic, Persian and Islamic Turkish names and terms is essentially that of the *Encyclopaedia of Islam*, new edition, with the substitution of /j/ for /dj/ and /q/ for /k/; also the subscript dots are omitted, but the *ʿayn* /ʿ/ and *hamza* /'/ are distinguished. Where /dh/, /kh/ and /sh/ indicate two distinct consonants and not digraphs for a single consonant phoneme, this is indicated by an apostrophe, e.g. as in *as'hāb*, *Ish'āq*, *mad'h*, *Mak'hūl*, and the apostrophe is similarly used when an /h/ follows a consonant like /dh/ or /sh/, e.g. as in *ash'har*, *madh'hab*.

In referring to groups, theological sects, philosophical schools of thought, etc., in the Islamic cultural region, it has not been possible to achieve complete consistency. In general, forms ending in *-ite(s)* are used, e.g. Karramite, Kharijite, Murji'ite, Shiʿite, except where there are conventional forms like Imami, Ismaʿili, Sunni. However, where there is reference to Sufi orders, the usual convention is followed of referring to them as either pluralized singulars, e.g. Chishtīs, Naqshbandis, Kubrawīs, or as collectives, with the corresponding Arabic suffix (*-iyya*) for these, e.g. Chishtiyya, Naqshbandiyya, Kubrawiyya.

For pre-Islamic Turkish, Mongolian, Tibetan, Chinese and Indian languages, contributors have been left to use the systems which are generally recognized for these languages.

Introduction

C. E. Bosworth

Volume IV, Part One, of this *History* has covered the dynastic, political and military history of the peoples of Central Asia, broadly defined here as comprising not only Transoxania (what the medieval Arabs first called *Mā warā' al-nahr*, The Land beyond the River [Oxus]) and East Turkistan (the modern province of Sinkiang or Xinjiang in the People's Republic of China), but also Khurasan or eastern Persia, what is now Afghanistan, the north-western parts of the Indian subcontinent, from Sind to Kashmir, and, on the eastern fringes, Mongolia and Tibet.

This Part Two covers the cultural achievements of the various peoples of this immense region – arts and crafts, literature, architecture, music, science, medicine and technology. It is hard to make any claim to cultural homogeneity over a region stretching from northern Persia almost to the Great Wall of China, and it has often been asserted that Inner Asia (to use a wider term than 'Central Asia' implies in the popular mind) can in many ways best be described in negative terms: it is that part of the Asiatic land mass which lies beyond the borders of the great civilizations around the western, southern and eastern perimeter of the continent – the Christian and Islamic ones in the west, the varied religions and traditions of the Indian subcontinent, the Buddhist cultures of South-East Asia and the Confucian-based one of China.

Over the millennia, the borders of the Inner Asian heartland of steppes, desert and forests have fluctuated, with nevertheless a general tendency for the core to diminish. This latter trend was certainly discernible over our period of 750–1500. The Islamic faith and culture had at the opening of this period to compete in Central Asia with older established faiths, such as Zoroastrianism, Manichaeism, Christianity and Buddhism. For over four centuries, the advance of Islam was gradual but with far-reaching effects, as the faith was extended north-eastwards into the Turkish steppes and eastwards across eastern Afghanistan towards India. It suffered a temporary setback with the invasions of the Buddhist Mongols in the thirteenth century from what is now Mongolia, but

was resilient and attractive enough to win the eventual adherence of the Turco-Mongol rulers in the west, certainly Muslim in the lands west of the T'ien Shan and the Altai by the mid-fourteenth century. (The Mongol rulers in the east, however, were drawn into the orbit of the Chinese world as the dynasty ruling in China for over a century, the Yüan, retaining the Buddhism which had replaced their ancestral animistic shamanism.) The adhesion of these rulers' followers was, however, a slower process, especially in East Turkistan, whilst the spread of Islam northwards into Siberia was checked by the transcontinental expansion of the Russian empire.

Even so, during the fourteenth and fifteenth centuries, the Islamic faith and culture achieved dominance over all rivals in Transoxania and in what was now called Mogholistan, the zone to its north, and was bringing East Turkistan into its orbit. At the same time, with the launching of raids from the plateaux of Afghanistan down to the Indus-Gangetic plains of India – admittedly primarily with the aim of plunder – from *c.* 1200 the Islamic religion and culture established a firm footing in north-western India from Sind through Multan and Panjab to Kashmir (provinces which have in our own time formed the Muslim-majority Pakistan and Jammu and Kashmir); and raids across the Ganges plain and southwards through the subcontinent brought a Muslim military domination as far as Bengal and the Deccan which lasted for several centuries.

All these lands which became part of the *dār al-Islām*, or Abode of Islam, received at the religious and cultural level a common imprint of high, official Islam; thus such buildings as mosques, *madrasa*s and saints' tombs are recognizably similar from Nishapur to Khotan, and from Ajmer to Tashkent. An Arabic script-based written culture, in which the Holy Word of the Qur'an exercised an overwhelming and all-pervasive influence, gave a common imprint to languages and literatures as varied in structure and scope as those of Persian, Sindhi and Eastern Turkic.

Nevertheless, Islam had not come here into lands of Inner Asia which were entirely a spiritual and cultural vacuum. As has been shown in the preceding volumes of this *History*, the nomadic peoples of the Inner Asian steppes and mountain regions had limited but vigorous skills in such fields as metal-working, painting and weaving, even if their mode of existence did not allow the development of such creative expression as architecture and sculpture. Also, what were clearly vigorous traditions of epic folk literature continued to flourish during the medieval period, as seen in the Oghuz Turkic epic of *Dede Korkud*, whilst that of *Manas* among the Kyrgyz remains very much alive today as a witness to the continuing vitality of these monuments of heroic, pre-Islamic culture.

There was in any case an interaction between the religious and cultural traditions of Islam, coming from south-western Asia, and the indigenous ones of Inner Asia, not only in the frontier lands but also within lands which had become at least superficially Islamized. Scholars from the time of Mehmed Fuad

Köprülü have pointed out how Islamic religious beliefs and practices at the popular level, often enshrined within the Sufi brotherhoods who carried on missionary work along the Inner Asian frontiers of the *dār al-Islām*, or visible in local cults and the veneration of saints' tombs, were frequently affected by the substratum of indigenous animism and shamanism.

Beyond the Inner Asian frontiers of Islam, to its east, lies a zone of lands which during our period substantially maintained their religious and cultural links with the civilizations on the southern and eastern fringes of Inner Asia, those of the Indian and Chinese worlds, vastly different in ethos from the sharply defined monotheism, the exclusive and closely structured theological, legal and philosophical systems of Islam. The mountain plateau kingdom of Tibet, with a recorded dynastic history from the early seventh century A.D., preserved its ancient Bon religious tradition into our period, although modified by the gradual introduction of Buddhism from the seventh century onwards so that Bon came to resemble a Buddhist sect. Tibetan Buddhism itself preserved, through the Indian masters who brought the Mahāyāna Buddhist religious system into the land, the traditions of Buddhist theory and practice as they had developed over nearly a millennium in their original Indian homeland, but it also absorbed into its pantheon and its teaching many Bon deities and rituals, so that a unique form of Buddhism evolved in Tibet; thus the Bon idea of divine kingship found a new Buddhist form in the concept of reincarnating lamas.

The recorded history of the Mongols, apart from vague and insubstantial mentions in Chinese sources of the barbarians beyond the Great Wall who at various periods harried the borders of the Middle Kingdom, dates only from the beginning of the thirteenth century. But with the rise of a local Mongol tribal chief, Chinggis Khan, to headship of a vast Turco-Mongol military empire, the Mongols became a major factor in the history of Central Asia, with an impact far beyond the region itself, one felt in places as far apart as Syria and eastern Europe and in China and even Japan. On the military and political level, these invasions exemplified for the settled peoples in the lands of higher culture around Inner Asia their traditional picture of the nomads as violent, destructive and insatiably greedy. It was true that the Mongols themselves had little culture of their own to contribute to surrounding lands, but they had their own animistic shamanism, were familiar with the faiths of outside lands and had a basic indifference to these other faiths, which in practice made for an attitude of tolerance. The possibility of journeying across the vast spaces of the Inner Asian land mass in comparative safety was now seized by intrepid Western Christian travellers like the friars John of Plano Carpini and William of Rubruck, and the merchant Marco Polo, and doubtless by many other Christians, and certainly Muslims likewise, whose names have not survived.

Thus a unique moment in history arose for the interchange of ideas and of aspects of material culture. The faiths of the West and the South, those of the Near East, the Iranian world and the Indian one, now had an impact on the

lands further east and north; eventually, those of the Mongols who had remained in Mongolia were converted – in the sixteenth century, just beyond our period – to Lamaistic Buddhism. In the reverse direction, commerce, artistic techniques such as the making of fine ceramics, and technological achievements such as silk cultivation and wood-block printing, were conveyed from China to the Islamic world and to Europe; here, the role of the travellers to the courts of the Mongol Great Khans in Karakorum and Peking was doubtless decisive. They certainly brought westwards into Europe the first authentic knowledge of Chinese civilization. Thus Central Asia acted as an intermediary, and it was the constituting of the transcontinental nomadic empire of the Mongols which made possible the transmission of artistic and technological techniques to the lands further west.

The present book was planned by the current Editor and by Professor Muhammad Asimov, the circumstances of whose tragic death were described in the Introduction to Part One of the Volume, pp. 21–2. Several of the contributors had been chosen by the time of Professor Asimov's death, but various others had to be chosen subsequently by myself. The actual editing of the manuscripts, the checking of translations from the native tongues of the contributors and the final preparation of copy for printing have been done by myself in conjunction with Mme Irène Iskender-Mochiri of UNESCO, who has acted as Secretary and Co-ordinator of the whole of Volume Four. The present book owes much to her skill and dedication, and I am most grateful to her; in particular, she has been responsible for procuring and preparing all the illustrations which do so much to make the book as attractive as it is and, hopefully, informative. Finally, tribute should be paid to the sub-editorial expertise and acuity in harmonizing the styles and wordings of contributions from many highly disparate spheres of learning, for this Part Two as for Part One, of Jana Gough in London.

1

THE DEVELOPMENT OF EDUCATION: *MAKTAB*, *MADRASA*, SCIENCE AND PEDAGOGY

A. K. Mirbabaev, P. Zieme and Wang Furen

Part One

THE ISLAMIC LANDS AND THEIR CULTURE

(A. K. Mirbabaev)

The *dabīristāns*, or higher secular schools

Naturally, literacy was concentrated in the cities, and the immediate needs of the rulers ensured that *dabīristāns* were established primarily in urban areas. These were a special kind of higher secular school for the graded and non-compulsory education of servants in the courtly administration. The *dabīristāns* of Iran and Transoxania incorporated many aspects of the early medieval academies and colleges of the Near and Middle East, which flourished under the Sasanians and subsequently under the Arab caliphs. Worthy of particular attention is the treatise that has come down to us under the title *Anūshirwān and His Servant*, in which a young *dabīr* (scribe) of noble origin lists for Khusraw I (531–79) the subjects in which he has received instruction in the *dabīristān*. He reports that, at a given age, his parents sent him to the *dabīristān*, where, under the guidance of a tutor, he learnt the *Avesta* by heart. Thereupon, he began studying the temporal subjects of history, literature and philosophy and subsequently went on to master the skills of horse riding, archery, javelin throwing and *chawgān* (polo). This was followed by music, for which he learned to play the lute, the drum and the stringed instrument called the *qānūn*. Furthermore, he learned to compete in *jang-i laghatak* (upright wrestling), backgammon and chess, was skilled in the art of cookery and was well acquainted with the varieties of garden flowers and the means of extracting various perfumes from them.

As may be seen from this incomplete list, the range of knowledge dispensed in the *dabīristāns* was fairly wide. Their curriculum under Islam in the

ninth and tenth centuries was probably little different from the usual curriculum in the Sasanian period. Thus the theologian and philosopher Muhammad al-Ghazālī (1058–1111) advised the would-be secretary to study the arts of drafting administrative documents and stylistics; indeed, in medieval Islam the ability to draft administrative documents and letters remained one of the most important attributes of the well-educated person. Al-Ghazālī further exhorted the young secretary to make a thorough study of geography, mathematics, geometry, astronomy, medicine, *ᶜarūd* (metrics, prosody), the classification of medicinal plants and the systems of underground irrigation.

Nizāmī ᶜArūdī Samarqandī (twelfth century) was of the view that 'the *dabīr* shall not be deemed to have reached the proper level until he has gained some knowledge of every science, memorized at least one erudite phrase from every master, heard at least one aphorism from every sage, and borrowed at least one uncommon device from every writer'.[1] According to Firdawsī's *Shāh-nāma* [Book of Kings], the role of the *dabīr* in pre-Islamic courts had often been performed by *mōbad*s (high priests), who were versed in secular as well as religious knowledge. Upon completion of their studies, young *dabīr*s took up service in the offices of provincial governors, district judges, merchants and traders carrying on business with neighbouring countries; they drafted agreements and administrative correspondence. Unusually able scribes could attain the position of *wazīr* (vizier, or chief minister).[2] The Ghaznavid court spent over 70,000 dirhams each month on the salaries of the court *dabīr*s, according to the historian Abu 'l-Fadl Bayhaqī.[3]

Special rules were established for the selection and training of *dabīr*s, whose position at court was defined by Kay Kāwūs b. Iskandar, the author of the *Qābūs-nāma* [Book for Qābūs] (eleventh century), and by Nizāmī ᶜArūdī Samarqandī. The scribes and secretaries enjoyed an elevated position in the social hierarchy, being employed in the Dīwān al-Inshā' (Department of Correspondence), which directed the civil administration and diplomacy. With the advent of the Arabs, the Persian term *dabīr* was supplemented by the Arabic equivalents *munshi'*, *kātib*, etc.

Mosques

Under Islam, mosques became the centres of religious worship and public meetings. The first mosque in Bukhara was built by Qutayba b. Muslim within the citadel, on the site of the fire temple. In the *Kitāb al-Qand fī tārikh Samarqand* [Book of the Sugar-loaf Concerning the History of Samarkand], a

1. Nizāmī ᶜArūdī Samarqandī, 1921, Discourse 1.
2. Kay Kāwūs b. Iskandar, 1951.
3. Bayhaqī, 1324/1945, p. 146.

local history of his city, Abū Hafs Samarqandī wrote that 'in the days of the infidels, the Jawziyya great mosque in Samarkand was the heathen temple of their idol and their place of worship'. According to the same source, the Jawziyya mosque soon became the centre of learning for the whole of Transoxania, and the Imam Abū Hafs Bukhārā'ī lectured in the first mosque of Bukhara, surrounded by his students.

Mosques of that period were divided into two types: smaller, local mosques and larger, Friday, or congregational mosques. The latter were built on the main market squares and at important crossroads and acted as nuclei in the formation of towns. The number of mosques was an indication of the dynamism and growth of towns and of their populations. For instance, the geographer al-Maqdisī counted some 40 great mosques in Ferghana in the tenth century. For al-Maqdisī, a great mosque was one of the criteria in the definition of a town. The architecture of the early mosques was characterized by a sweeping use of space and by the use of decoration. For example, it is reported that the great mosque of Kath in Khwarazm contained a large number of carved wooden columns resting on pedestals of black stone. The first great mosque of Nishapur was built under ʿAbd Allāh b. ʿUmar, who directed the siege of Nishapur at the time of the Arab conquest. He demolished the fire temple located in the citadel and built in its place the first great mosque. The Samanid great mosque of the ancient city of Afrasiab, in Samarkand, and the Ghaznavid great mosque of Ghazna were exquisitely decorated, and are in part known through the efforts of modern archaeologists. Remains of early mosques from the tenth to the twelfth century have been uncovered in Ghazna and Usrushana. The remains of a tenth-century mosque have also been found next to the cemetery of Talkhatan at Merv, and the remains of two tenth-century mosques at the site of Mashhad-i Misriyan. In the early period of Islam, mosques also played an important politico-social role as well as a cultural-religious one: they housed the treasuries and government offices of the first Arab settlers.[4]

The *maktabs*, or elementary schools

A decree making Arabic the language of all official business in Khurasan and Transoxania and forbidding non-Muslims to work in government offices was issued in 741. This date may tentatively be taken as the starting-point for the history of the *maktab* in the region. The sources have not yielded any direct information concerning the architecture or curricula of early *madrasas* (colleges for higher religious studies) and *maktabs*. There are references to *maktab-khānas* (i.e. school buildings) in several legal documents from the tenth to the

4. Bartol'd, 1966, p. 112.

fifteenth century, however, and useful visual evidence for the interiors, teaching materials and code of conduct for students and teachers (*maktabdārs*) may be gathered from miniatures of the Shiraz and Herat schools of the fourteenth to the sixteenth century, for which school settings were a favourite subject, but all this evidence is from later times.

As a rule, the *maktab* was attached to the local mosque and was often located in the teacher's house, where he and his wife looked after boys and girls separately. The basic methods of teaching and education in the *maktab* are methodically and thoroughly described in one of the works of Abū ᶜAlī Ibn Sīnā (Avicenna, *c.* 980–1037), in a chapter entitled 'The Role of the Teacher in the Training and Upbringing of Children'; in the *Kīmiyā-yi saᶜādat* [The Alchemy of Happiness] by al-Ghazālī; in the *Taᶜlīm al-mutaᶜallim tarīq al-taᶜallum* [Teaching the Student the Method of Study] by Burhān al-Dīn Zarnūjī (twelfth century); in the *Akhlāq-i Nāsirī* [Nasirean Ethics] by Nasīr al-Dīn al-Tūsī (thirteenth century); in the *Akhlāq-i Jalālī* [Jalalian Ethics] by Jalāl al-Dīn Dawānī (fifteenth century); and in the exhortations of such classical poets of Persian literature as Rūdakī, Firdawsī, Nāsir-i Khusraw, Saᶜdī, Hāfiz, Jāmī and others. For instance, the programme of education and training proposed by Ibn Sīnā involved sending children to school from the age of 6. He believed that when a child reached that age, it was the duty of the parents to look for a good teacher and tutor, who should be wise, devout, perspicacious and knowledgeable about the methods of moral and intellectual schooling. Ibn Sīnā attached great importance to the method of study and held that the child ought not to be immediately tied down to books; teaching should be a gradual process.[5]

From the tenth to the twelfth century and later, notwithstanding the well-developed network of *maktab*s, teaching was often informal and amateurish. A significant proportion of families remained content to teach their children at home. The more well-to-do families, such as Ibn Sīnā's own parents, hired tutors for that purpose, although Ibn Sīnā himself was not in favour of individual tutoring, feeling that teaching in isolation from a school was tiresome for both pupil and tutor alike. He put forward a number of ideas on the advantages of teaching pupils together, citing the value of competitiveness and emulation among pupils and the usefulness of group discussions and debates.

In his curriculum for children between the ages of 6 and 14, Ibn Sīnā included study of the Qur'an, metaphysics, language, *adab* (belles-lettres), ethics and manual skills. Al-Ghazālī, however, was strongly opposed to the teaching in school of *adab*, which he considered more suited to women. He recommended that children be taught the writings of wise men and that they be introduced to the lives of the main figures in the foundation of Islam, the Companions of the Prophet. He also advised schoolteachers and parents to nurture

5. For the *maktab*, see *EI*[2], 'Kuttāb' (J. M. Landau).

all the good traits that appear at a youthful age in the behaviour and character of children and, if necessary, to praise children in front of other people and reward them with presents.

In the second stage of schooling, which Ibn Sīnā called the period of specialization, pupils should, in his view, begin to acquire manual skills, irrespective of their social status. He advised teachers and tutors to show the utmost attention and prudence in this transitional stage, making allowances both for the age of their pupils and for their emotional development, since children differ naturally from one another. For instance, some pupils have a flair for reading, others for manual skills, yet others for literature, while some are destined to be preachers; and pupils are drawn to these subjects according to their interests. 'And moving away from the multifarious domain of language,' Ibn Sīnā wrote, 'one observes that some choose medicine, others geometry; and thus various groups of people specialize in professions that are closest to their hearts.' Ibn Sīnā's own preference was for the teaching of crafts, rather than the more risky trade and commerce, since 'the master of a craft, no matter what the circumstances, will always find a use for his skills'. The teaching of such crafts should begin immediately after completion of the study of the Qur'an and basic Arabic grammar. He advised parents not to be over-protective of their children and not to smother them with attention while they were being trained in a craft; rather, they should be given encouragement, and an interest should be taken in the final result of their efforts.

In the pedagogical systems of al-Ghazālī, Nasīr al-Dīn al-Tūsī, Dawānī and others, little attention was devoted to the education and schooling of girls; indeed, this was positively discouraged. Those moral philosophers forbade girls to learn to read. Dawānī thought that girls did not need an intellectual training, and wrote: 'With regard to the education of girls, care should be taken to teach them housekeeping, modesty, piety, demureness and other qualities and skills necessary to women.'[6]

The profession of Qur'an-reciter

Recitation of the Qur'an by professionals, called *qārī* or *hāfiz*, provided employment for many people, especially as *waqf*s (charitable endowments) were frequently set up to provide such a service in the form of *qārī-khāna*s and *dalāyil-khāna*s. The *qārī-khāna*s provided a link between the *maktab* and the *madrasa*. Entrants to them were principally orphans and blind children. In the towns there was always a great demand for reciters of the Qur'an. For instance, in Khujand (in Ferghana) in the nineteenth century there were as many as

6. Mirbabaev, 1992, p. 85.

70 *waqf*s for Qur'an recitation, and according to Russian statistics from 1892, some 40 *qārī-khāna*s were in operation there. In the region as a whole, with the exception of the Bukhara amirate, there were over 333 *qārī-khāna*s. By applying such figures retrospectively to the period under consideration, it is possible to gain some idea of the significance of the *qārī-khāna*s for urban cultural life at that time. As a rule, each *qārī-khāna* had from 5 to 10 pupils. There was no fixed period of study, but a successful pupil had to be able to chant from memory the entire Qur'an, which was divided into 30 sections. From the ranks of professional reciters of the Qur'an came a good number of poets and cultural figures in Islam, such as the classical Persian poet Hāfiz Shīrāzī, who received his pen-name ('One who has Memorized the Whole Qur'an Text') from his skill here.

The *madrasa*s, or colleges for higher religious and other studies

The first educational institution in the Muslim world was the mosque built at Medina early in the seventh century by the Prophet Muhammad and his Companions.[7] From then on, mosques were used for teaching purposes, especially for the teaching of law and theology, but as society developed, study circles were held not only in the mosques but also in the palaces, in the streets and even in the market-places. Nevertheless, the mosque remained pre-eminent for the teaching of theology and jurisprudence, where students sat in a circle at the teacher's feet. A training in religious law could provide a livelihood and was accordingly popular. For instance, one day in 997 the most illustrious teacher of law in Nishapur drew a crowd of over 500 students, and the successor to the celebrated Imām al-Haramayn Abu 'l-Maᶜali Juwaynī daily attracted classes of over 300.[8] These classes and study groups constituted a kind of 'free university', for the teachers were not subject to any particular restrictions or obligations and students were free to choose among the available classes, discussion groups and study circles.

During the ᶜAbbasid period (from 750 to the middle of the thirteenth century) religious education became a branch of learning in its own right, with some teachers specializing in the Qur'an, theology and jurisprudence, while others studied Arabic language, literature and history. The study circles also grew in number and quality during this period, forming the nuclei of what were to become the *madrasa*s, colleges intended for adults who had already received their primary education in private schools or mosques. In the tenth

7. Arodaky, 1977, p. 35. For the institution in general, see Makdisi, 1981.
8. Mez, 1937, p. 178.

century the *madrasa* emerged as an independent institution distinct from the mosque, although *madrasas* – at least in the early days – were set up either for a single jurist or to teach the tenets of a particular legal school. Thus was born a new kind of educational institution, destined in future to become a centre of religious and secular learning in the Islamic world and a place where the representatives of the official class were educated in the spirit of Muslim orthodoxy.

On the eastern fringes of the caliphate, in particular in northern Iran, Khurasan and Transoxania, the first *madrasas* appeared also at the turn of the tenth century. A question that is intimately connected with the origin of the architecture of *madrasas* concerns the historical and cultural aspects of their emergence in Khurasan and Transoxania. Here the Russian orientalist Bartol'd was a proponent of the 'eastern' school. He wrote that 'notwithstanding the Aryan origin of the word *khānaqāh* (hospice), and the Semitic origin of the word *madrasa*, *khānaqāhs* spread in Muslim Asia from west to east, while *madrasas* spread from east to west'. Bartol'd linked the gradual spread of *khānaqāhs* into Mesopotamia, Syria and North Africa to the Seljuq expansion, which, in his view, contributed to the dissemination of aspects of eastern Iranian culture in those countries.[9] Indeed, the cultural mission of the Seljuqs, whose intellectuals and officials came from among the Iranian inhabitants of western and northern Iran, Khurasan and Transoxania, was considerable and it seems that the Transoxanian model provided the basis for the 'Seljuq type' of *madrasa*. The Seljuqs borrowed and took westwards a mature, fully developed style of architecture and academic system for these institutions. It seems likely that when the great Seljuq vizier Nizām al-Mulk founded the celebrated Nizāmiyya in Baghdad in 1065, he simply copied the Bukharan and Khurasanian models for *madrasas*. The sources mention as many as 33 *madrasas* in the East before the appearance of the first *madrasa* in Baghdad. The Seljuqs established further *madrasas* in Khurasan and Transoxania. Thus, after he came to Samarkand in 1130, Sanjar ordered the Quthamiyya *madrasa* to be built next to the shrine of the local hero Qutham b. ʿAbbās, nothing of which, however, remains today.

With a view to the dissemination of the ideas of the Ashʿarite theological school, Nizām al-Mulk also had *madrasas* built at Isfahan, Nishapur, Herat, Merv and other cities where adherents of the school were concentrated.[10] According to the later historian Hāfiz-i Abrū, the Seljuqs founded over 70 *madrasas* in Khurasan. Thus the evidence of written sources and the architectural remains of *madrasas* tends to indicate that the birthplace of the *madrasa* was indeed Khurasan and Transoxania.

9. Bartol'd, 1964, pp. 430–1; 1966, p. 288.
10. *EI*[2], 'Madrasa' (J. Pedersen and G. Makdisi); 'Nizām al-Mulk' (H. Bowen and C. E. Bosworth).

The attention of specialists has also focused on the historical prerequisites for the emergence of the *madrasa*. The Swiss orientalist Adam Mez held that the primary reason was the change in teaching methods. 'In the tenth century,' he wrote, 'philologists rejected dictation and confined themselves to *tadrīs* (interpretation of works). The change in teaching methods in turn gave rise to a new type of educational institution: the predominance of *tadrīs* at that time brought the *madrasas* into existence.'[11] In any event, the emergence of the *madrasa* gave rise to a certain stratification of education: higher religious and also secular education was provided by the *madrasas*, and elementary education by the *maktabs*. It is apparently in this period that the term *madrasa*-mosque, prevalent in the Middle Ages, came into use – confirmation of the fact that mosques, especially great or congregational mosques, remained important social, educational and cultural centres of the cities.

From the tenth to the fifteenth century, *madrasas* spread throughout the eastern caliphate as the highest form of educational institution. Between the tenth and the twelfth century, there were numerous *madrasas* containing libraries in Bukhara, Khwarazm, Merv, Nishapur, Balkh, Ghazna and Khuttalan. According to Abu 'l-Fadl Bayhaqī, there were over 20 *madrasas* in the region of Khuttalan, and large numbers in the region of Balkh and in Ghazna. Today, of the *madrasas* of the Khuttalan region, only the Khoja Mashhad *madrasa*, in Sayyad Shartuz district, has survived. Contemporary historians, almost certainly exaggerating, mention the *madrasas* of Balkh as running into hundreds; thus, according to Muhammad Sālih, the city had 400 *madrasas* before it was captured by the Mongols in 1220. When describing the *madrasas* of Merv, al-Maqdisī noted that 'each person who delivered lectures there received a salary'; at that time there were some two dozen *madrasas* in the city. *Madrasas* were especially concentrated in Nishapur, the capital of Khurasan and one of the great centres of learning in the East. Many of them held large collections of books. When the city was taken by the Oghuz in 1153, most of these collections were burnt, and the remainder were sold for the price of the paper. The Nizāmiyya *madrasa* of Nishapur was a stronghold of Ashᶜarite theology. One of the professors there was the Imām al-Haramayn Juwaynī, and al-Ghazālī also taught there. Another teacher at the Nizāmiyya was the son of Nizām al-Mulk, Fakhr al-Mulk. However, there were many other *madrasas* at that time at Nishapur, such as the Sāᶜidiyya and the Sābūniyya.[12] In Khwarazm, one of the teachers at the *madrasa* of Kath, the ancient capital of Khwarazm, was the famous mathematician-scholar Abū Nasr Mansūr b. ᶜIrāq, tutor to al-Bīrūnī.

The Mongol invasion dealt a temporary blow to learning, severing links between creative intellectuals and for a time disrupting the continuity of culture,

11. Mez, 1937, p. 179; Makdisi, 1981, p. 174.
12. Bulliet, 1972, pp. 249–55, listing the *madrasas* at Nishapur as known from the sources.

but after the successful monetary reform introduced by the first Mongols, Möngke Khan and his minister Masᶜūd Beg, economic life soon revived in the cities of Iran and Transoxania. These same rulers encouraged the exact sciences, which, as noted by Bartol'd, they perceived to be of practical use. In this cultural renaissance, particular preference was given to the organizational role of the *madrasa* as the promoter of literary and scientific thought. Under Masᶜūd Beg twin *madrasas* were built in Bukhara, in each of which, according to al-Juwaynī, 1,000 students could study. However, during the civil wars of the 1270s, when Bukhara was laid waste for seven years, the *madrasas* and their libraries were burnt down.

At this time, the public education functions of the *madrasas*, which distinguished them from other urban foundations such as mausoleums, *khānaqāhs*, *musallās* (oratories), etc., underwent substantial changes. By the fifteenth and sixteenth centuries, there were moves towards integration and specialization, and individual *madrasas* in Samarkand and Herat, under the influence of the scientific circles that had formed there, now acquired a more clearly defined and well-developed structure as centres of scientific education, with inquiries into such sciences as mathematics, astronomy, medicine, philosophy, theology, languages, literature and music. For example, at the *madrasa* of Nasīr al-Dīn al-Tūsī, which was attached to the observatory at Maragha in Il Khanid Azerbaijan, there was a large teaching staff of astronomers headed by al-Tūsī himself, and the *madrasa* had a huge collection of books, allegedly totalling over 400,000 manuscripts, although this must be a vast exaggeration.

The development of science and education in the realm of Hülegü and his Il Khanid successors was inseparably linked with the figures of Rashīd al-Dīn and Nasīr al-Dīn al-Tūsī. In 1236 the latter wrote in Persian his *Akhlāq-i Nāsirī* on ethics and education. In 1259, on the instructions of Hülegü, he began to build and equip an observatory on an elevated site to the north of Maragha, at a cost of 20,000 dinars. On the orders of the Il Khan, a portion of the state's *waqf* income was allocated to the observatory. The Maragha observatory became a focus of scientific activity. Under the leadership of al-Tūsī, over 100 scientists worked and wrote there, and astronomical observations were carried out there for a period of over 15 years. Attached to the observatory was a *madrasa*, and lectures there were closely connected to the activities of the observatory. Its teaching covered philosophy, medicine, theology and *handasa* (technology). Al-Tūsī applied a variable grant-scale, under which philosophy students received 3 dirhams per day, medical students 2, theology students 1 and engineering students 0.5. Apart from al-Tūsī, other scientific figures who taught at the *madrasa* were ᶜAllāma Qutb al-Dīn Shīrāzi (1236–1311) and Najm al-Dīn Kātibī Qazwīnī (d. 1277).

Under the Mongols, and later under the Timurids, there was a growing tendency to build at major urban sites architectural ensembles that often included a mosque, a *madrasa*, a mausoleum and public *garmābs* (baths), and

we have valuable accounts of the construction of *madrasas* undertaken by Mongol rulers and members of their families in Shiraz, Isfahan, Tabriz, Kirman, Gurganj and other cities in Iran and Central Asia. One of the most important buildings of the late fourteenth century in Samarkand was the Khanum *madrasa* opposite the famous great mosque of Timur, built in honour of his mother and his wife, Sarāy-i Mulk Khānum. According to the fifteenth-century historian Fasīhī Khwāfī, the construction of the great mosque of Samarkand (begun in 1398–9), which Timur intended to pay for out of what he had plundered from Persia and brought back from Hindustan, took a very long time and a vast amount of money; the amir eventually had the two architect-builders executed.[13]

In the fifteenth century there was a veritable explosion in the rate of construction of *madrasas* and under Timur's descendants, Shāh Rukh, Ulugh Beg, Sultān Husayn Bayqara and others, Samarkand and Herat, two cities with ancient cultural and literary traditions, once again became centres of lively internal and external trade, crafts, science, literature and art. One of the foremost building projects in Samarkand at the turn of the fifteenth century was the *madrasa* of Timur's favourite grandson, Muhammad Sultān, occupying the eastern part of the Gur Amir square, built in tandem with a mausoleum. In the *madrasa* were buried not only Muhammad Sultān, his wife and daughter, but many other members of the Timurid dynasty. The most imposing structure in Samarkand in the fifteenth century was, however, the Ulugh Beg *madrasa* in the Registan square. Building started in 1417 and was completed in 1420. Fasīhī noted that the edifice consisted of a *madrasa* and a *khānaqāh* facing each other. According to Ulugh Beg's contemporary, Dawlatshāh Samarqandī, the *madrasa* was unequalled in its beauty and harmonious proportions; over 100 students received instruction there and the teachers included such leading scholars as Mawlānā Khwāfī, Qādīzāda Rūmī, Ghiyāth al-Dīn Jamshīd, Muʿīn al-Dīn Kāshī and others. With respect to the scientific environment at Samarkand in the 1420s, Ghiyāth al-Dīn Jamshīd wrote that:

> in Samarkand are now to be found the most illustrious scientists and a great many professors teaching all the sciences. Most of them are concerned with mathematics. Four of these people have at present managed to complete only half of a commentary on *Comparisons Regarding Arithmetic*; another has written a treatise on the geometric proof of the question of the two errors. Qādīzāda Rūmī, who is the most knowledgeable among them, has composed a commentary on [the astronomer] Chaghmīnī, and others on *Well-founded Propositions*. Many astronomers and experts in computation have also gathered there.

Ghiyāth al-Dīn Jamshīd further remarked on the learnedness of Ulugh Beg in the fields of jurisprudence, mathematics, Arabic, literary theory and style, and

13. Fasīhī Khwāfī, 1980, p. 120.

theory of music. As a young man, the Amir Ulugh Beg received an excellent education from the poet Hamza b. ᶜAlī Malik al-Tūsī of Bayhaq and from Qādīzāda Rūmi; later, in his mature years, when he had come to power, he again surrounded himself with learned and educated people. The poet Jāmī came twice to Samarkand to attend the lectures of the celebrated Qādīzādā Rūmī and then returned in the 1450s as a *mudarris* (lecturer) at the Ulugh Beg *madrasa*, establishing close links with Samarkand's leading poets and scholars of the day.

At the end of the fifteenth century there were also many *madrasas* in operation in Herat. The Timurid rulers Shāh Rukh and Sultān Husayn Bayqara, and the minister ᶜAlishīr Nawā'ī himself, were zealous advocates of the founding of *madrasas* and other cultural institutions. Among the buildings of Sultān Husayn Bayqara, of particular beauty and elegant composition were the *khānaqāh* and *madrasa* built by him on the Khiyaban thoroughfare on the south bank of the Injil canal. The city's leading professors were invited to deliver lectures there, including Husayn Wāᶜiz Kāshifī (d. 1504), the author of the ethical treatise, the *Akhlāq-i Muhsinī* [Muhsinian Ethics] and a total of eight professors taught there. Among the architectural monuments of Herat, the buildings of ᶜAlishīr Nawā'ī occupied a prominent place. The *waqfiyya* (deed of endowment) drawn up by him in 1481 states that in 1476 Sultān Husayn Bayqara granted him land to the north of Herat, near the village of Gazurgah (see Chapter 18 below). This was a well-irrigated plot of land covering an area of 30 *jarībs*, which Nawā'ī enclosed with a wall and planted with trees. In the centre of the grounds he had an architectural ensemble built consisting of the Khalasiyya *khānaqāh*, the Ikhlāsiyya *madrasa*, the Shifāᶜiyya hospital and a school for Qur'an-reciters called the Dār al-Huffāz (House of the Reciters). It also contained a mosque and the Qudsiyya mausoleum, together with a number of secular buildings, including baths, a residential hall and so on. Apart from this ensemble, Nawā'ī also built the Khusrawiyya *madrasa* in Merv and restored the Nizāmiyya *madrasa* in Herat.

By the end of the fifteenth century, there were over 30 *madrasas* in operation in Herat. The Chinese ambassador Zhen Zheng, who visited the city in 1414, wrote in his travel account: 'In the capital there is a large mud-brick building called a *mā-de-r-se* [*madrasa*]. On all four sides it has broad, spacious galleries. In the centre of the courtyard stands a copper vessel, rather like a large cauldron . . .' For the students studying in his *madrasas*, Nawā'ī engaged the most celebrated scholars of Herat. For example, at the Ikhlāsiyya, lectures were given by Mawlānā Ghiyāth al-Dīn Khayrābādī, Mawlānā Muhammad Khwāfī, Mawlānā Muhammad Tabrīzī, Mawlānā Masᶜūd Shīrwakī, Amir Burhān al-Dīn ᶜAtā ᶜAllāh Nīshāpūrī and others, all prolific authors in various branches of the traditional sciences during the fifteenth century.

It was in this period, too, that specialized *madrasas* began to be established for the teaching of medicine and Herat came to have five hospital-

*madrasa*s. One of the first had been founded by the widow of Timur's son, ʿUmar Shaykh Malikat Agha, who subsequently became the wife of Shāh Rukh, and a second hospital was founded by the grandson of Shāh Rukh, Mīrzā Walī al-Dawla; these were now refounded by Nawā'ī. According to Hāfiz-i Abrū, to the south of the great mosque of Herat stood another hospital-*madrasa* called the Dār al-Shifā' (House of Treatment or Curing), while another one, known as the Shifā'iyya, stood beside the Injil canal, just west of the Ikhlāsiyya *madrasa*; it was still functioning when Bābur was in Herat. Yet another hospital was situated in the quarter of the Gawhar Shād *madrasa* and *musallā* and is thought to have been established by Shāh Rukh. Other hospital-*madrasa*s are known in Rayy, Merv and Samarkand at this time.

The institution of the *madrasa* was also well known in the Indian subcontinent, where the first *madrasa*s appeared as early as the thirteenth century. For instance, when Jūzjānī arrived in Sind in 1227, the local ruler Nāsir al-Dīn Qabācha put him in charge of the Fīrūziyya *madrasa* there, and when he went to Delhi in 1236 he was appointed a judge and head of the Nāsiriyya *madrasa*. Bābur wrote in his memoirs, the *Bābur-nāma*, that there were no baths, *madrasa*s or lamps in India (perhaps meaning here, the essentially Hindu parts of the subcontinent), but elsewhere he wrote that one Rahīm Dād had established a *madrasa* at Gwalior and he remarked on the architectural similarity between *madrasa*s and Buddhist *vihāra*s (monasteries). 'The rooms in these heathen temples', he wrote, 'are just like the *hujra*s [rooms or cells] of a *madrasa*: each is crowned with a narrow stone cupola.'[14]

Thus in medieval Islamic times, *madrasa*s were the main centres of what had begun as religious education, but where scientific research also came to be conducted. At the same time, the *madrasa*s served as a refuge for poor, wandering students (*mustahiqq*s), who for the duration of their studies received bed and board paid for out of the *waqf* income of the *madrasa* and might study there for years. In a word, the *madrasa* was a universal centre of culture and education from which each individual took away for himself, and hence for culture in general, something useful and necessary.

In the history of *madrasa*s there were inevitably periods of both growth and decline. Many teachers, often the leading scholars of their day, fully recognized that it was the secular sciences that could ensure the dynamic development of society. In his treatise entitled the *Ihsā' al-ʿulūm* [Enumeration of the Sciences], which was used as a manual in the *madrasa*s, al-Fārābī (d. 950) deliberately assigned one of the lowest ranks to metaphysics, or the study of the general principles concerning the existence of God. The tenth-century scholar Maysarī, a physician by profession, maintained that there were four basic sciences, one of which was medicine, and that the science of medicine was neces-

14. Bābur, 1922, pp. 610, 613.

sary for the science of religion, since it was impossible for a person to study religion if he was ill.

Much attention was also devoted in the *madrasa* curricula to the teaching of *adab*, or polite culture, which encompassed a number of disciplines of rational knowledge, such as philosophy, mathematics, astronomy, chemistry and medicine, but, above all, involved the study of history, poetry and philology. For instance, the *waqf-nāma* (deed of endowment) of the Karakhanid ruler Tamghach Khan Ibrāhīm (1040–68), regarding the *madrasa* he established in Samarkand, stated that the building should contain a number of premises for the teaching of *adab*; it further stated that the yearly salary of a teacher of *adab* was to be 1,200 dirhams. The concept of *adab* accurately reflected the philosophical views and moral standards of intellectuals during our period. In later medieval times, however, teachers of the rational sciences became increasingly narrow and scholastic, and submissive to the authority of those who adhered rigorously to Islamic theologico-legal traditions.

Part Two

THE SEARCH FOR KNOWLEDGE THROUGH TRANSLATION: TRANSLATIONS OF MANICHAEAN, CHRISTIAN AND BUDDHIST LITERATURE INTO CHINESE, TURKIC, MONGOLIAN, TIBETAN AND OTHER LANGUAGES

(P. Zieme)

General remarks

Some observations will be made here on the process of translation in the region of Central Asia, mainly in the oasis towns along the Silk Route. It is quite clear that general conclusions cannot easily be drawn because the number and scope of the texts, and the differences in space and time between them, vary greatly. The earliest texts are probably from the third century A.D., while the latest were copied in the eighteenth century. Thus we are dealing with a period which is apparently beyond the scope of 750 to the fifteenth century, but in fact, most of the Central Asian texts fall precisely within the narrower time range; there are only a very few earlier and later examples.

We have mainly to consider religious literature because other genres are only rarely recorded, or, in other words, most of the non-religious literature was not translated. The religious literature in Central Asia is of three main types: Manichaean, Christian and Buddhist.

Manichaean literature

Central Asia is of great importance for the history of our knowledge of Manichaeism, as here were found the first original writings of Manichaean communities established in many oases within as well as beyond Central Asia from the fourth century onwards. Central Asian Manichaean communities used Middle Persian and Parthian, as well as Sogdian, for translating canonical works or for composing new Manichaean scriptures in these languages. Existing word lists, sometimes bilingual ones such as Parthian/Middle Persian–Sogdian, or Sogdian–Turkic, reveal a little of the work of translators to us, but usually the only traces of their works are surviving fragments. In general, we have no information on the actual persons who did the work of composition and/or translation, because in the case of Iranian texts there are very few colophons. There are, however, a few names of authors of Manichaean–Turkic texts. (On the languages to be found in the key area here, Xinjiang, see Table 1, p. 51.)

The Manichaean scriptures were transmitted by missions into the settlements of Central Asia. Translations were made for the purpose of further missions, and new scriptures were also composed. Several Middle Iranian languages were in use in these regions, including Bactrian, Khotanese, Tumshuqese, Middle Persian, Parthian, Sogdian and, later, New Persian (see Chapters 13 and 14 below), but the Manichaean scriptures were composed only in Bactrian, Middle Persian, Parthian, Sogdian and New Persian. While Middle Persian and Parthian tended to be used for religious purposes, Sogdian was not only a literary language but also a vernacular, a lingua franca for merchants and their communities. Unfortunately, the translation techniques are difficult to detect, since no colophons with relevant information have been found in the manuscripts. Confessional texts were important for the Manichaean communities, and here Sogdian was the predominant language, at least in the case of the text for the 'elect', the higher level of religious adherents. Manichaean texts in Chinese followed mainly Parthian predecessors. In some cases they were even phonetically recorded in Chinese.[15]

Christian texts

According to J. P. Asmussen, in Iran, translations from Syriac into Middle Persian were already made to a considerable extent. This process continued in Central Asia and China and extended to other Central Asian languages, mainly into Sogdian and to a small extent into New Persian also. Much less is known about translations into Old Turkic. Among the very few remnants there is one

15. Bryder, 1985; Yoshida, *EIr*, Suppl.

fragment which contains a slightly altered version of the Adoration of the Three Magi: after Jesus accepted the three presents, he gave the Magi a piece of rock that they could not carry; finally, they threw it into a well and fire arose from it. The Christian texts come mostly from Kocho itself as well as from Bulayïk and Kumtura, two small villages north of Turfan. So far, it is not very clear from which language Turkic texts were translated. There is a complete Sogdian version of the creed, but only a small fragment in Turkic; the latter may be a rather free rendering of the text. A fairly large number of bilingual Christian texts exists. They were mainly written by the Sogdians, interpreting the original Syriac works. Thus the Christian literature of the Sogdians, using mostly the Nestorian script, consists mainly of liturgical and hagiographic works translated from Syriac.

Buddhist translations

The question of the transmission of Buddhism via Central Asia to China is still debated. We have to admit the existence of very different traditions and thus also manifold ways of translation. The early Buddhist works and translations in the Kushan empire have already been discussed by J. Harmatta.[16] Gāndhārī slowly lost its importance for Buddhist literature and it was now in Sanskrit, from the first century A.D. onwards, that texts were composed. Such scriptures were brought to China via Central Asia, where they were translated into Chinese. Much information is available on the ways and techniques of translating Buddhist texts from the Indian languages into the languages of China and Tibet, but our knowledge of the translations into the Central Asian languages such as Tokharian A and B, Khotanese, Tumshuqese, Sogdian, Bactrian, Old Turkic, Mongolian and so on is rather meagre.

The Chinese sources also contain some information on the process of translating. Generally speaking, translating in ancient China was the result of teamwork and for the most part it was done in public. The history of translating Buddhist texts into Chinese begins with the famous Parthian An Shih Kao, who worked in the second century[17] Kumārajīva's translations are famous for their style and were preferred on this account to the more accurate later translations. When from the sixth century onwards the work of translating fell increasingly into the hands of specialists, the translations became much better. A very distinguished and highly respected translator in the seventh century was Hsüan-tsang (Xuanzang), who is well known for his journey to India as well for his translation work. Translations were made either in a literal fashion

16. See Vol. II of the *History of Civilizations of Central Asia*, pp. 433 et seq.
17. Forte, 1995.

or in a freer style. While An Shih Kao and others followed the first approach, monks like Chih Ch'ien and Dharmarakṣa preferred a more beautiful and readable style. Tao-an (312–85) tried to combine a faithful translation with an exact rendering of the ideas. He organized translation bureaux under the auspices of ruling emperors or princes. Yen Ts'ong (557–610) engaged in reflections on the way of translating Buddhist Sutras. Finally, it was Kumārajīva who developed firm principles regarding the art of translation, for which he enjoyed high prestige. As reported by his collaborator Seng-chao (fifth century), Kumārajīva took great pains when translating a text from the Indian original into Chinese.

Later, in the Sui and T'ang dynasties, the translation bureaux had specialists: a head, a translator who recited the foreign text, a verifier of the meaning, a scribe, a verifier of the written Chinese text, a polisher of style, a proof-reader and a corrector of the Chinese. Hsüan-tsang and Yi-ching now became the great masters of translation. Hsüan-tsang, for example, was well versed in both Sanskrit and Chinese and his translations were accordingly of a high standard. Although Hsüan-tsang's translations are superior to those made by Kumārajīva, the latter's versions continued to be held in high esteem and it was often these versions that were used for further translations into Central Asian languages such as Sogdian and Old Turkic. After the translation periods of An Shih Kao, Lokakṣema, Dharmarakṣa, Kumārajīva and Hsüan-tsang (second–seventh century), the last great figure was Yi-ching, who left China in 671 for India. He studied at the great university of Nalanda and returned to China in 695 with nearly 400 Sutras, commentaries and other works. Between 700 and 712 he translated 56 works (230 volumes).

In general terms, there are four different ways of utilizing a religious text: citing the text in the original language; translating the text word by word, whether or not the original text is also given; free translation; and a self-conscious adaptation of the text by using formal characteristics other than those of the original (e.g. versification of a prose text). A special case is known from the time of the Northern Sung dynasty. In 980 an order was given to open an Institute for Sutra Translation in Kaifeng. Two years later, the buildings were ready, and in 983 the name was changed to the Institute for Transmission of the Dharma. The translations were made in order to present them to the emperor. This and other internal factors, as well as external ones such as the shift from mainstream to sectarian Buddhism, led to a general decline in the intellectual side of Buddhism during the Sung dynasty. To a certain degree, a new interest in Buddhism was in vogue when the translation of the *Jātakamālā* was made.

As an example of Buddhist translations and their development through the ages, we may recall here the history of the *Suvarnaprabhāsūtra* [Sutra of Golden Light], which gained wide acceptance in all Buddhist countries. The original text was composed during the fourth and fifth centuries in India. According to J. Nobel, who devoted much effort to the study of this text, the entire Sutra is a collection of several text pieces which as a whole were a very

useful and informative book for Buddhists, whether monks or laymen. In Nepal the Sutra was counted among the nine dharmas, and there are traces of early translations into all major languages. The Chinese and Tibetan translations are a particularly useful guide to the dates of the text transmission.

The first Chinese translation was made by Dharmakṣema between 414 and 421 and consists of only 18 chapters (T. 663). Paramārtha (sixth century) subsequently made a new translation in 22 chapters, but actually added only 4 chapters. In the course of the sixth century two other translators, Yaśogupta and Jñānagupta, worked on the translation of some other parts, making a text of 20 chapters. Their results do not survive, but they were used by Pao-Kuei, who compiled a compact edition in 597 (T. 664). The famous monk Yi-ching, who travelled to India between 671 and 695, translated this Sutra entirely anew (T. 665) and it was mainly this version which spread to other regions.

Of the Tibetan translations which can be found in the Kanjur, the oldest version was called Tibetan I by Nobel. Tibetan III is a word-by-word translation of Yi-ching's Chinese version, while Tibetan II is based on the Sanskrit text. There are also translations into the Hsi Hsia language made from Chinese.

Sogdian translations

Many of the existing Sogdian Buddhist texts are translations from Chinese, but it is also true that there were at least two other channels through which the Sogdians were influenced, namely Kuchean (Tokharian B) and Sanskrit. In the case of *jātaka* (stories of one of the previous births of the Buddha) and similar texts, one may observe that they were original compositions.

Khotanese translations

Khotan, in the southern part of the Tarim basin, was an important centre of Buddhism. The existing literature is thus mainly Buddhist. The majority of the texts identified so far depend more or less on Sanskrit versions; some of them are close translations, others are paraphrases and a few are original compositions. As an example, the Khotanese version of the *Vimalakīrtinirdeśasūtra* should be mentioned, since this text is known in Sanskrit only from citations.

Tokharian translations

Among the Central Asian discoveries by such scholars as Sven Hedin, Sir Aurel Stein and A. von Le Coq, from the end of the nineteenth century onwards, it was the texts in an unknown language that attracted lively interest. According

to the colophons to the Uighur version of the *Maitrisimit nom bitig*, its name could be established as Tokharian, although this name is not accepted by all scholars. A close relationship to Sanskrit Buddhism can be made out for most of the Tokharian Buddhist texts, although exhaustive comparisons between the two languages are still rare.[18]

Turkic translations

As is known from Chinese sources as well as from the Bugut inscription, the Kaghans of the First Türk empire had contacts with Chinese Buddhists, but there is only one record of a translation of a Buddhist work – the *Nirvānasūtra* – into Turkic and there is now no trace of it.[19] The Uighurs took up the Buddhist traditions in Central Asia. Four different traditions in Uighur Buddhism can be identified, as specified below.

THE CENTRAL ASIAN TRADITION

There are two major works here, the *Maitrisimit nom bitig* and the *Daśakarmapathāvadānamālā*. In the colophons to the first, it is written that the work in question has been translated from Sanskrit into a language called *toxrï* and from that into Turkic. This is why the 'unknown' language was called Tokharian, because a comparison of the *Maitreyesamiṭināṭaka* in that language and the *Maitrisimit* shows a clear dependence. The other work has colophons according to which the *Daśakarmapathāvadānamālā* was translated from the Kucha language (Tokharian B) into *toxrï* (Tokharian A), and then from Tokharian A into Turkic. It is very important that a Sogdian *Kāñcanasāra* fragment is located in the fifth book of a work called *The Ten Good Deeds*. This makes it probable that, besides the above-mentioned versions, there was also a Sogdian one not mentioned in the Turkic colophons, i.e. one that existed independently. Both Turkic scriptures may have been translated in the ninth century, the manuscripts stemming from different sites in the Turfan oasis, Hami and Dunhuang.

THE CHINESE TRADITION

As in Sogdian Buddhism, many works were translated into Uighur (Turkic) from Chinese. This tradition continued up to the end of Buddhist culture in the Turfan area in the fifteenth century. A central place in Mahāyāna (The

18. Schmidt, 1983.
19. Klimkeit, 1990, p. 55.

Greater Vehicle) Buddhism is occupied by the *Saddharmapuṇḍarīkasūtra*. It was the *Avalokiteśvara* chapter which especially gained wide acceptance among Uighur-speaking Buddhists. As in China and elsewhere, this chapter developed into a scripture of its own. Colophons sometimes contain the name of the translator. For the Uighurs, it was Shingqo Shäli Tutung who ranked first among the translators, but we have on him only the scanty information contained in these colophons. According to them, he came from Beshbalïk, one of the capitals of the Uighur kingdom. He translated several Buddhist scriptures from Chinese into the *türk* language. New activities arose in the Yüan or Mongol period, when Uighurs and other Central Asian people served the emperor and the religious leaders, many being employed as officials.[20]

THE TIBETAN TRADITION

Translations from Tibetan were apparently made only in the Yüan period. There are several works with colophons confirming this assumption as, for example, the *Rājāvavādakasūtra*. Other texts have been influenced by Tibetan versions, as has already been assumed for at least one version of the Uighur *Altun yarok* [Golden Light].

THE 'INDIAN' TRADITION

The use of Indian words and scripts became fashionable during the Yüan period, to such an extent that some texts have a very mixed appearance. Some colophons claim that the respective scriptures were translated from the Indian language (*äntkäk tili*), but investigation has shown that such assertions are doubtful; Indian origin may have been inserted in order to convey a higher relevance to the texts.

General remarks

In contradiction to the orthodox translation practice in Tibet, for example (*pāda* to *pāda* translation, strictly following the style of the original; prose to prose, stanza to stanza, etc.), in Central Asia we can sometimes observe a rather unorthodox style in the methods of translating the holy Buddhist texts. On the one hand, there is a kind of interlinear translation; on the other hand, texts were translated in abridged form, in amplified form or in a different style. Thus we know of prose texts translated as verse and vice versa. A good example is the case of the Uighur rendering of a Chinese prose text of Pure Land Buddhism,

20. Franke, 1996.

the *Guanwuliangshoujing*, of which there exists a Uighur version in alliterative verses typical of the later period of Uighur literature. The poet, whose name was Kki-kki, was compelled to shorten some passages and transpose certain others, or to insert additional words and phrases, all in order to obey the rules of strict strophic alliteration. Another feature of Uighur translations is the use of alternative translations. In some cases, phrases of the Indian or Chinese originals were translated twice without eliminating one of the two versions.

The reasons for the translations' deviating from their originals are manifold, but a detailed analysis of them helps us to understand the peculiarities of Uighur Buddhism. If we exclude translated works, we obtain a corpus of texts which may be regarded as original writings, naturally composed within the usual religious framework.

Hsi Hsia translations

As Buddhism was the state religion, the translation work and compiling of a canon here was under imperial control.

Mongol Buddhism of the first period

The first propagation of Buddhism among the Mongols of the Yüan period (thirteenth–fourteenth century) was strongly connected with Uighur Buddhism, in other words, the first Mongolian translations were made from Uighur texts; but very soon the influence from the Tibetan side became stronger. In some cases, like that of Čosgi 'odzer, we do not even know whether he was a Tibetan or a Mongol.

TABLE 1. Languages and scripts of Xinjiang in the Middle Ages

Languages

Family	Group	Language
Semitic		1 Syriac
Indo-European		2 Greek
	Tokharian	3 A
		4 B
	Indic	5 Sanskrit
		6 Gāndhārī
	Iranian	7 Middle Persian
		8 Parthian
		9 Khotanese
		10 Tumshuqese
		11 Sogdian
		12 Bactrian
		13 New Persian
Turkic		14 Old Turkic
Mongolian		15 Mongol
Manchu		16 Manchu
Sino-Tibetan		17 Chinese
		18 Tibetan
		19 Tangut

Scripts

Greek 2 > Bactrian 12
Syriac-Nestorian 1, 11, 13, 14
Manichaean 4, 7, 8, 11, 12, 13, 14
Pahlavī 7
Sogdian 7, 8, 11, 14 > Uighur 14 > Mongolian 15 > Manchu 16
Brāhmī 3, 4, 5, 6, 9, 10, 11, 14, 15
Kharoṣṭhī 6
Devanāgarī 5
Runic script 7, 14
Tibetan 18, 14
Chinese 17
Hsi Hsia 19
'Phags-pa 14, 15

Part Three

EARLY BUDDHISM IN TIBET AND THE EDUCATIONAL ROLE OF THE MONASTERIES

(Wang Furen)

The appearance of Buddhism in Tibet

In the seventh century, Buddhism formally entered Tibet, which was called Bod at the time. Many countries and regions around Tibet had already become Buddhist by the fifth century, but since the Tibetan writing system had not yet been formulated, no one in Tibet was knowledgeable about the contents of the scriptures, the incantations and some of the instruments of Buddhism. At the time of its appearance in Tibet, Srong-btsan sgam-po was king (*btsan-po* in the Tibetan language). He first married Princess Khri-btsun of Nepal and then Princess Wencheng of the T'ang dynasty of China. Both were committed Buddhists and each brought a statue of Sakyamuni, the founder of Buddhism, to Tibet; until modern times, these two statues were preserved intact in two temples in Lhasa. Though the statues themselves are not intrinsically important, they have historical significance as signs that Buddhism entered Tibet from India, Nepal and China.

The struggle between Buddhism and Bon

Before the arrival of Buddhism, Tibetan society, from the palace down to the common people, universally believed in the religion of Bon, which stemmed from the Zhang-zhung region in western Tibet. It was a primitive shamanist religion, but with a solid social base in Tibet (see further on Bon in Chapter 2, Part One, below). It is recorded that 'from Gnyav-khri btsan-po (the first ruler in popular legend) onwards, 26 generations of *btsan-po*s ruled his country under the Bon religion'. Once Buddhism entered Tibet, sharp contradictions and conflicts arose between Buddhism and Bon. At the time, the royal family of Bod, with Srong-btsan sgam-po as leader, did its utmost to support Buddhism. In the meantime, despotic chiefs in various regions of Tibet upheld Bon in order to buttress their own power. This struggle between Buddhism and Bon during the period of the royal court of Bod (from the seventh to the middle of the ninth century) was intermittent but continuous.

Buddhism gained unprecedented power in Tibet when Khri-srong lde-btsan (755–97) became ruler. He ordered representative figures of Buddhism and Bon to engage in a public debate, with himself serving as judge; at the end, he decided that the Buddhists had won the argument.

The struggle within Buddhism between Ston-min-pa and Tshen-min-pa

Soon after this triumph of Buddhism, the struggle between Ston-min-pa and Tshen-min-pa took place. Ston-min-pa supported the belief advocated by the Buddhism which came from the Chinese region. It maintained the idea of 'sudden consciousness', i.e. entering consciousness through the absence of thought and thus reaching the highest realm, nearly becoming Buddha himself. Tshen-min-pa, on the other hand, was of the belief advocated by the Buddhism which came from India, which held that one could only obtain one's goal step by step, through practice and learning. His followers were hence called the Tshen sect ('the sect of gradualism'). The dispute between the two varieties of Buddhism was also settled in public, and once again under Khri-srong lde-btsan. At first, Ston-min-pa took precedence, but in the end Tshen-min-pa triumphed. Allegedly, the outcome was determined over a three-year period (792–4). Henceforth, the Buddhism which had entered Tibet from India occupied a dominant position; yet although the Buddhism which had entered Tibet from China lost power and influence, it had a certain influence on individual sects of Tibetan Buddhism which arose in later periods.

The learning and teaching of the Buddhist scriptures in early monasteries (mid-eighth century)

The first monastery in which the monks learned the Buddhist scriptures appeared a century after Buddhism entered Tibet. Prior to this, a number of halls of worship had been built, but they were only used to worship the image of Buddha; no monastery had been created where the scriptures were learned and the monks tonsured. In the middle of the eighth century, Khri-srong lde-btsan invited the Indian Buddhist monks Santaraksita and Padmasambhava to come to Tibet for missionary work. They constructed the first monastery in which monks learned the Buddhist scriptures and were tonsured, the Bsam-yas monastery, on the northern bank of the Yarlung tsangpo river in Brag-nang. Santaraksita became the *mkhan-po* (abbot) and seven children of the Tibetan nobles followed his footsteps and became the first group of Buddhist monks in Tibet.

Khri-srong lde-btsan soon invited Buddhist monks to Tibet to do missionary work and to translate the Buddhist scriptures; the most famous of them were Vimalamitra and Anānda. He also sent monks to study in India, where they learned the *rdo-rje theg-pa* of Indian Buddhism and Indian languages and writings. The first group of monks included Rnam-par-snang-mdzd-srung, called Verotsanaraksita by the Indians.

The setback to Buddhism (mid-ninth century)

Khri-gtsug lde-btsan and his adherence to Buddhism

Following Khri-srong lde-btsan, several generations of *btsan-pos* adhered to Buddhism. At the time that his grandson Khri-gtsug lde-btsan (also known as Ral-pa-can) (815–38) ascended the throne, Buddhist culture was highly developed. Arising from the need to translate the Buddhist scriptures, the standardization of Tibetan writing began: the rules of spelling became more uniform, some useless morphemes were cut out, agreement was reached on the translation of terms and it was stipulated that a private individual could not create new words without the approval of the royal court. Those Buddhist scriptures already translated were compiled, over a period of time, into three catalogues: *ldan-dkar*, *mtshims-phu* and *vphang-thang*, the last being completed during Khri-gtsug lde-btsan's reign. During the period of his reign, the Buddhist monks had also secured power at the royal court; in 822 the chief Tibetan representative who signed the peace treaty with the T'ang dynasty was the monk and prime minister Bande chen-po Bran-ka Dpal-yon.

Dar-ma's suppression of Buddhism

Khri-gtsug lde-btsan's adherence to Buddhism led to a sense of grievance among the supporters of the Bon religion. Accordingly, the nobles who favoured Bon killed him, and his brother Dar-ma, who was supported by these nobles, became *btsan-po* (838–42). As soon as he ascended the throne, Dar-ma launched a movement to suppress Buddhism. The monasteries were pillaged, the scriptures burned and the monks persecuted; thus the 'three treasures' – the Buddha, the doctrines and the monks – were destroyed. In the history of Tibetan Buddhism, the period prior to Dar-ma's suppression, i.e. the early phase of development of Buddhism in Tibet, is accordingly called 'the *former* magnificent stage'. In 842 Dar-ma was assassinated by a Buddhist monk, bringing the royal line of Bod to an end.

Revived Buddhism (latter half of the tenth century)

Smad-brgyud-kyi Vdul-ba's arrival from the A-mdo region

In the latter half of the tenth century, Tibetan society was already characterized by a hierarchical form of rule. South of Lhasa, in the vicinity of the Bsam-yas monastery, there arose a local movement led by a descendant of Dar-ma

btsan po called Yes-shes rgyal-mtshan, a local feudal lord and the master of the Bsam-yas monastery. In 978 he dispatched a delegation of 10 members, with Klu-mes Tshul-khrims shes-rab as leader, to the A-mdo region (the modern Xining and its vicinity) to learn the Buddhist scriptures. The region had originally been an outlying district ruled by the Bod court, but when Dar-ma suppressed Buddhism, some monks escaped thither and propagated Buddhism, so that a comparatively well-known centre of Buddhist culture had arisen in A-mdo.

Klu-mes Tshul-khrims shes-rab and the others brought back Buddhism from the Xining region to Tibet and propagated it; this movement is historically known as Smad-brgyud-kyi Vdul-ba, i.e. the force of developing Buddhism coming from the east. Hence 978 is considered the first year of the '*later* magnificent stage', i.e. the later development of Buddhism in Tibet.

Stod-brgyud-kyi Vdul-ba's arrival from the Mngav-ris region

At the same time, the monk-king Yes-shes-vod (another descendant of Dar-ma btsan-po), from the small kingdom of Gu-ge, did his utmost to develop Buddhism in his region of Mngav-ris; he dispatched students to India to learn Buddhism and had them transcribe many of the Buddhist scriptures into Tibetan script on their return. In 1042 Vbrom-ston-pa (1005–64), a rich Buddhist from Lhasa, invited Atiśa to come to Lhasa to preach Buddhism; this movement is historically known as Stod-brgyud-kyi Vdul-ba, i.e. the force of developing Buddhism coming from the west. Scholars of Tibetan culture hold that the Buddhism which developed through Smad-brgyud-kyi Vdul-ba and Stod-brgyud-kyi Vdul-ba, after the '*later* magnificent stage', may be termed Tibetan Buddhism, i.e. Buddhism mixed together with some elements of Bon so that it became a new sect of Buddhism.

The construction of monasteries of different sects of Tibetan Buddhism (eleventh–fifteenth century)

Distinctive aspects of the individual monasteries

Through the activities of the revived Buddhist force in the tenth century, Buddhism once again flourished in Tibet, in a context within which local lords of various regions often allied closely themselves with the faith, out of which different sects gradually formed. Hence from the middle of the eleventh century, the sects of Bkav-gdams-pa, Sa-skya-pa, Bkav-brgyud-pa, Rnying-ma-pa, etc.

took shape, with further sub-sects within the third of these. Each sect had its own monastery and its own distinct emphasis and characteristics regarding methods of teaching and imparting knowledge. Meanwhile, most of the sects became integrated with local lords in order to form alliances, which became the most outstanding feature of Tibetan Buddhism.

Buddhist monasteries as centres of science, culture and religion

Since the monks, with their command of written language, science and culture, formed an intellectual stratum, the monasteries had a distinctive position in Tibetan society; they were not only centres of religious activity but also of culture and the sciences. Since they were often built in regions where agriculture and stock-raising were practised, and where communications were convenient, they were often near the local markets where farm products were exchanged, and thus themselves might grow into local economic centres. Furthermore, the Buddhist monks' knowledge of the calendar and astronomical terms gave them an authoritative position, and altogether, the monasteries of the sects had a wide influence.

Tibetan Buddhist monks as advocates of the science of the 'Five Brilliances'

The monks believed that the 'Five Brilliances' (i.e. a good command of five different sciences) were the yardstick of knowledge; according to Indian custom, a man proficient in the 'Five Brilliances' was called *pandita* (scholar). The 'Five Brilliances' were divided into the large and the small. The former were Buddhist philosophy, Buddhist logic, the knowledge of critical interpretation of ancient texts (including Sanskrit grammar), technology and medicine. In the past, some people considered the small 'Five Brilliances' to be contained within the large one of knowledge of the critical interpretation of ancient texts. They included astrology, poetry, phonology, vocabulary (including the wide variety of definitions of single words, and the variety of words for single concepts), song and dance. From the enumeration of the large and the small 'Five Brilliances', one can see the many fields of knowledge that a Buddhist monk was expected to master.

The system of integrating government administration with religion

As early as the tenth century, Yes-shes rgyal-mtshan and Yes-shes-vod, with their double status as monks and feudal lords of the region, had already brought together government administration and religion. After the middle of the

eleventh century, with the gradual formation of different sects of Tibetan Buddhism, this process accelerated. From the middle of the thirteenth century, because of support from the Mongol Khans who came to rule in northern China as the Yüan, the power of the Sa-skya sect considerably exceeded that of the others and it favoured the integration of government administration with religion in Tibet. In the middle of the fourteenth century, the process, continued by the Phag-gru branch of the Bkav-brgyud sect, was extended further.

The establishment of the Dge-lugs-pa, or Yellow Sect, of Tibetan Buddhism

Tsong-kha-pa's foundation of the Yellow Sect

In 1409 Tsong-kha-pa (1357–1419), the monk of A-mdo, with the support of the leader of the Phag-gru branch of the Bkav-brgyud sect, founded a new sect of Tibetan Buddhism: the Dge-lugs-pa, popularly known as the Yellow Sect. Tsong-kha-pa gained much prestige from his erudition and advocated that the Buddhists should observe special commandments. After the establishment of the Yellow Sect, its power began to surpass that of the older ones and it eventually became the strongest sect, with the greatest number of monks.

The organizational structure of the monasteries of the Yellow Sect

The most typical monasteries were Dgav-ldan, Vbras-spungs and Se-ra, established in the early years of the fifteenth century. They were organized on three levels, with the middle level called *grwa-tshang*, meaning 'the house of monks'. Each monastery consisted of more than two *grwa-tshangs*, a large and a small. Each *grwa-tshang* had an abbot, the *mkhan-po*, whose subordinates comprised the members of a small committee, responsible for learning and reading the scriptures and for discipline and financial affairs. Individual monks specialized in exoteric or esoteric sciences, medicine or astrology.

The lower grade of *grwa-tshang* was called *khams-tshan* and was divided according to districts. It was also the basic unit for the monks who learned the scriptures, headed by the *spyi-rgan*. His subordinates formed part of a committee responsible for the conduct of the general affairs of the *khams-tshan*. Above the *grwa-tshang*, the unit called *bla-spyi*, in charge of the entire monastery, formed the highest committee. There were also several committee members who were in charge of discipline, the financial affairs of the entire monastery and reading the monks' scriptures. The committee system was especially characteristic of the Yellow Sect, having the aim of counteracting local lords' intervention in the running of the monastery and thus preserving its independence.

LEARNING THE SCRIPTURES AND THE RANKS OF ACADEMIC DEGREES IN THE YELLOW SECT

The monks of the Yellow Sect studying the scriptures under the *grwa-tshang* of exoteric sciences had to learn five main works, all written by Indians. The first work, the *Tshed-ma-rgyan*, written by Chos-grags, explained Buddhist logic and required two years of study. The second, Byams-pa's *Mngon-par-rtogs-pavi-rgyan*, examined the doctrine of *prajnā* (wisdom, insight into the true nature of things) and also required two years of study. The third work, the *Dbu-ma-vjug-pa*, which was written by Zla-grags and also required two years of study, explained the *Dbu-ma* written by the Indian philosopher Klu-sgrub. The fourth work, Yon-tan-vod's *Vdul-ba*, examined discipline and required five years of study. The fifth and final work, the *Mngon-pavi-mdzod*, written by Dbyig-gnyen, examined perceptions of the earth and life; the period of study was unlimited.

The method of learning emphasized recitation and argument. In order to obtain the academic degrees, called *dge-bshes*, denoting the man whose knowledge is broad and profound, the monks had to reply to questions concerning the five main works. According to their success in the examinations, the monks were awarded different levels of *dge-bshes*.

In addition, there were two senior esoteric colleges in Lhasa, Rgyud-smad Grwa-tshang and Rgyud-stod Grwa-tshang, both established in the fifteenth century. A monk who had finished the study of the five main works and had received the first level of *dge-bshe* could enter one of the two esoteric colleges in order to learn advanced esoteric doctrines. Through progressive upwards movement, he might become Dgav-ldan khri-pa, the master of the Dgav-ldan monastery, and thus the successor to the throne of the Tsong-kha-pa Buddhist doctrine, the purely religious leader of the Yellow Sect.

In order to learn all the scriptures, from the study of the five great works of exoteric learning, through the examinations and the *dge-bshe* diplomas, to the final ascension to the position of Dgav-ldan khri-pa, a monk had to spend at least 50 years of his life in study.

THE DEVELOPMENT OF THE POWER OF THE MONASTERIES OF THE YELLOW SECT

Most of the monasteries of the Yellow Sect had been constructed before the fifteenth century. After the sixteenth century, their power developed and extended further, so that the system of reincarnation began. The Dalai Lama and the Panchen Lama were the two living Buddhas who had the greatest power; both were figures in the system of reincarnation, successively established from the sixteenth to the seventeenth century.

The propagation of Tibetan Buddhism at the Mongol court (mid-thirteenth century)

The relationship between Sa-skya-pa and the Mongols

In 1224 Go-dan, the grandson of Chinggis Khan, invited Sa-pan (1182–1251), abbot of the Sa-skya sect of Tibetan Buddhism, to Liangzhou (now Wuwei county in Gansu province) to discuss Tibet's submission to the Mongols. In 1247 the first direct contact between the Mongol ruling family and the Tibetan Buddhist leaders took place, when after discussion on both sides, Sa-pan sent an open letter to the Tibetan spiritual and secular leaders in the various localities in order to persuade them to submit to the Mongols. Thus Tibet was peacefully incorporated into the Mongol empire. In 1260 Qubilay Khan unified the whole of China, including Tibet. He continued Go-dan's policy of favouring the Sa-skya sect of Tibetan Buddhism and granted the title of 'State Tutor' to its new leader, Vphags-pa (1265) (the nephew of Sa-pan), who was ordered to administer Buddhism throughout the country and the general affairs of the whole Tibetan region.

The influence of Tibetan Buddhism on the politics of the Yüan dynasty

In the early stage of the Mongol empire, the government adopted a policy of conciliation towards the religions of the conquered regions. No religion was favoured, and even within the Mongol royal family, beliefs varied. Though shamanism clearly dominated, others adopted Nestorian Christianity. When Chinggis Khan embarked on his conquest of Central Asia, he appointed the leader of Taoism, Qiu Chuji, as 'State Tutor'.

Since Qubilay Khan only esteemed the Sa-skya sect of Tibetan Buddhism, other religions became less important. He appointed the leader of that sect first as 'State Tutor' (1260) and then as 'Imperial Tutor' (1270). Before the end of the Yüan dynasty, 14 leaders of the Sa-skya sect had held the post of 'Imperial Tutor', thereby enjoying special power. However, Tibetan Buddhism was only favoured at the Mongol court, i.e. the Yüan dynasty; within Mongol society as a whole, shamanism remained dominant.

2

Religions and Religious Movements

H.-J. Klimkeit, R. Meserve, E. E. Karimov and C. Shackle

Introduction

(H.-J. Klimkeit)

Although cultural and religious life along the Central Asian Silk Route was determined both by various indigenous traditions, including Zoroastrianism, and by the world religions that expanded into this area from India and China as well as from Syria and Persia, we can detect certain basic patterns that recur in different areas and situations.[1] Here we mainly wish to illustrate that there were often similar geopolitical and social conditions in various oasis towns. The duality of such towns and the surrounding deserts, steppes and mountains is characteristic of the basic situation. Nomads dwelling in the steppes had their own social structures and their own understanding of life, which was determined by traditions that spoke of forefathers and heroes of the past who had created a state with its own divine orders and laws. The Old Turkic inscriptions on the Orkhon river in Mongolia are a good case in point. The main concern reflected here is the life of the ethnic group, its preservation and the enhancement of its vital force. This is achieved by submission to the divine ruler and the divine laws, the ruler guaranteeing and enforcing these, as is emphasized, for example, in the Turkic Kül Tegin inscription of Bilge Kaghan.[2]

In the city-states it was not a tribal, but a universal type of religion that determined the life of the people, and of the individual who gained greater prominence in view of his ethnic group. This was not only true of the universal religions, Buddhism, Manichaeism and Nestorian Christianity, but to a certain degree of Zoroastrianism, which by its structure is universalistic, although it remained confined to the Iranian peoples because of its traditions. The universal

1. For such patterns, see Klimkeit, 1990*a*, pp. 220–8.
2. Tekin, 1968, pp. 261 et seq.

religions addressed the individual rather than the tribe or ethnic group, although it was certainly the case that the individual found his place within the ranks of an extended family. It is noteworthy that, of the many documents found on the Silk Route, almost all religious texts can be associated with a world, or universal, religion. Oral traditions of the ethnic religions probably survived, but they were not reflected in the religious texts under consideration here, even though these could incorporate older traditions. The universal religions were concerned, not with maintaining the well-being of the ethnic group, but with the personal salvation of the individual, whose condition tended to be regarded as woeful, at least in Buddhism, Manichaeism and Nestorian Christianity. It is understandable that Buddhism especially, with its teaching on suffering and the personal striving for *mokṣa* (salvation), gained the most adherents in the city-states along the Silk Route. But the other religions mentioned, including Zoroastrianism, also offered a personal weal or salvation.[3]

In spite of the manifold religious worlds we encounter on the Silk Route, three types of questions pertaining to the individual become apparent. These are, first, questions pertaining to personal life and death; the problem of death, especially, comes to the fore in religious consciousness. Second, there are questions pertaining to the afterlife in the next world, an issue that was of less weight in the ethnic religions, where man could find his fulfilment within the scope of his tribal group. And third, there are, of course, the questions pertaining to life itself, to its meaning and to the control of it.

In so far as the consciousness pertaining to death is concerned, we are at times reminded of ancient Egyptian religion. For the prevalent geographic conditions can be compared to the land of the Nile, where the zone of life was sharply demarcated from the zone of death. In Central Asia, the oasis, with its natural and artificial irrigation, stands opposed to the deserts and steppes outside, which for the oasis-dweller had something uncanny about them. Here lurked dangers of all kinds, either in the concrete form of nomadic thieves and robbers, or in the more intangible form of demonic forces at work. (The descriptions of the travels of Chinese monks on their way to India clearly bring this out.) Thus for the oasis-dweller, the situation of the sheltered town and the open, dangerous steppes corresponds to the duality of order and chaos, of life and death. It seems that the Uighur Türks, after leaving the steppes and settling in the towns, assumed a completely different attitude to that sinister region 'out there' that had formerly been their home, as has been illustrated by the case of the Uighur Türks settled in the kingdom of Kocho in the Turfan oasis.[4]

As in the ancient Near East, the desert surrounding the towns was the place where the dead were buried, for this was the arid zone of death. But

3. See Mensching, 1976, pp. 55 et seq.
4. Gabain, 1959, pp. 30–62.

where there was water, there was life. The importance of Bactrian, Khwarazmian and Sogdian river goddesses attests to this connection between water, life and the presence of the gods. This can be substantiated by the documents of the various different religions represented along the Silk Route. Thus an inscription in Surkh Khotal tells us how a Zoroastrian sanctuary was abandoned because of the break-down of the water supply, whereupon a certain Nokonzoko built an aqueduct, thus restoring the water-supply, in the hope that the gods would then return.[5]

In the Christian documents, the connection between water, life and God's grace is also explicitly expressed,[6] and in the Manichaean texts, biblical water imagery is frequently used. But in accordance with the living conditions on the Silk Route, new expression is also given to the water imagery. Thus in a hymn commemorating Mar Zaku, a church leader who had died around 300, there is an invocation of that leader which says: 'O Living Sea that has dried up! The course of the rivers is obstructed, and they no longer flow.'[7] In the Parthian Hymn-Cycles, a life separated from God, from the Father of Light, and from the saving deities, is compared to living in a desert: '[It is] dry from drought, and parched by hot winds. Not one golden drop [of water] is ever [found] there.'[8]

Buddhism, which had its origin in India with its many rivers and streams, did not make the connection between water and life and a religious theme, as the religions in the Near East had done. But the Buddhists could speak metaphorically of the Buddha's Law as of a cloud that brings the desired water to the parched earth (see the *Lotus Sūtra*, Ch. V). Accordingly, in a Buddhist Chinese temple inscription from Turfan, the Law of the Buddha is referred to as 'the dew of immortality' and the Buddha appears as one who, by his teaching, assuages the thirst of living beings.[9]

It is quite in accordance with life on the Silk Route that the saviours – Jesus, Mani, Buddha – would be hailed as the great caravan leaders. In a Manichaean text, the teacher Mar Zaku is even commemorated as such a one, his death having left his people destitute. He is invoked with the words: 'O zealous Caravan leader who has left his caravan behind in deserts, wastes, mountains and gorges.'[10] This leads us to the theme of death, and life after death. The ossuaries of Khwarazm and Sogdia testify in their own way to the hope of a life beyond, since one bears this inscription: 'This chest is the property of *Sraw-yōk*, the son of *Tīš-yān*. May their souls rest in the eternal

5. Henning, 1960, pp. 47–55, esp. p. 54.
6. Pigoulevskaya, 1935–40, p. 16.
7. Klimkeit, 1993, p. 87.
8. Ibid., p. 104.
9. Kern, 1965, pp. 118–41; Franke, 1907, p. 53.
10. Klimkeit, 1993, p. 87.

Paradise.'[11] The Chinese sepulchral inscriptions from Astana in the Turfan oasis usually look back at the life of the deceased, but they can also express the hope for a further life in simple words. Thus one inscription reads: 'He [the deceased] has gone forth from here and has come to another world.'[12] In a Christian sepulchral inscription it says of the preacher Shelicha: 'May our Lord unite his illuminated soul with the righteous and the fathers; may he participate in all glory.'[13] And in eloquent words, a Buddhist donor at Turfan gives expression to his hope that the good deed he has done by having a book copied will result in his ultimate salvation. He says: 'By virtue of this good deed may we meet with the Buddha Maitreya, may we receive from the Buddha Maitreya the prophecy of blessing [to attain] Buddhahood, may we be redeemed from *Samsāra* [the circle of rebirths] and may we quickly reach the peace of *Nirvāna* [the quenching of the fires of greed, hate and delusion].'[14] The fact that the dying Buddha, gently smiling and thus overcoming death, is depicted in the most holy spot of the sanctuary is indicative of the importance of everything connected with death in the Buddhist architecture of the Silk Route.

But there was not only a yearning for the other world and for a life beyond. This life, too, had to be mastered. And in mastering life, and giving meaning to it, the world religions played a decisive part. Though life in the oasis towns was not as rough and difficult as it was in the steppes, it was constantly endangered from without. Thus there is an awareness of the fragility of life and of its fleeting character. The volatility of life was constantly obvious to the oasis-dweller, who depended on so many factors: the continued supply of water, the continued open passage to other towns and the continued peace that could suddenly be shattered by forces from 'out there'. The protective deities played their role in every religion. In Buddhism it is mainly the Bodhisattva Avalokiteśvara who is repeatedly solicited for aid and protection. In Manichaeism, the 'spirits and heavenly powers' (*qut vaxsïklar*), including the archangels of Judaism and Christianity, fulfil this task. Christians, too, had their helpers in need, the foremost being St George, who, in a Turkic text, expresses his willingness to help all in distress.[15] But the religions not only had such auxiliary functions as warding off danger and preserving well-being. Basically, they endowed life with meaning. As opposed to the attitude of the nomads of the steppes, which is characterized by an orientation towards the great heroes of the past who themselves are models for present existence, man in the oasis towns is very much aware of his limited capabilities and the fact that his life depends on divine powers. These limited possibilities, and especially the short-

11. Henning, 1965*a*, p. 179.
12. Stein, 1921, repr. 1980, p. 986.
13. Chwolson, 1890, p. 56.
14. Hazai, 1976, pp. 274 et seq.
15. Bang, 1926, pp. 41–75.

comings, are expressed religiously in terms of sin. Hence we have a wealth of confessional prayers among the documents from the Silk Route. A major theme – and one that occurs repeatedly – is that here, in life, it is still possible to confess one's misdeeds, whereas afterwards it will be too late.

Part One

RELIGIONS IN THE CENTRAL ASIAN ENVIRONMENT

(R. Meserve)

Turkic and Mongol beliefs, the Tibetan Bon religion and shamanism

The indigenous religion in Central Asia developed along two lines: the popular or folk religion was an unorganized system of beliefs held by the common people, whereas the 'imperial' religion belonged to the aristocracy and was more organized. While specific aspects of the indigenous religion could vary from tribe to tribe, among clans or even by geographic location, there were many common features throughout Central Asia. The more the various tribes came into contact with the civilizations surrounding the region, the greater the influence of foreign religions, which often lessened the importance of the indigenous religion over the passage of time but never entirely eliminated its underlying presence.

TURKIC AND MONGOL BELIEFS, INCLUDING SHAMANISM

The popular religion was characterized by shamanistic practices, totemism, polytheism and animism; the focus was of a practical nature born out of the necessities of everyday life. The shamans, or tribal priests, intervened between man and the spirit world for good or evil. The degree to which shamans entered a state of ecstasy or trance might vary, but their function remained the same. They had power over the weather, forecast the future and were called upon to cure diseases in both humans and animals. Sacred lands and water (*iduq yer sub*), zoomorphic and anthropomorphic idols, often referred to by their Mongol name, *ongons* (totems), were of primary importance. Cults grew up around natural phenomena, especially mountains and trees, animals (such as the wolf among the Türks or the equestrian gods of the Mongols) and elements such as fire. Animal sacrifices, and occasionally human ones, were made. Spirits or powers resided everywhere and were taken into consideration by man before

any act, however simple, from preparations for hunting to war, from birth to marriage to death.

The 'imperial' religion tended to oppose shamanism and totemism; it was centred more upon myths of origin and the cult of ancestors, often with divine births and superhuman qualities attributed to the founder of the tribe. Early Chinese sources, for example, report at least three legends of origin for the Türks of the sixth to the eighth century, strongly suggesting the confederate make-up of their empire. The heritage passed down through rulers and their clans, and the ceremonies surrounding their burial and the preservation of their memory became part of the tribal identity and often an indicator of political legitimacy. Funerary statues (*babas* and *balbals*) were erected to memorialize victories over slain enemies and keep princes of the past among the living. The cult of the ancestor, less developed among the Turkic peoples, became more important under the Kitan and especially with the Mongols, culminating, perhaps, with the cult of Chinggis Khan. The 'imperial' religion was more monotheistic, centred around the all-powerful god Tengri, the sky god. The cosmological scheme of sky, earth and later an underworld added to the order as did a concern for directional orientation. This more orderly world often put the ruler in direct competition with the shamans and their ability to intercede with the spirit world.

TIBETAN BON

More difficult to define, the early use of Bon meant the 'invoking' priest as opposed to the priest who carried out sacrifices (*gShen*) at tombs as a part of the 'sacred convention' (*lha-chos*), not the 'human convention' (*mi-chos*). A religion of the Tibetan aristocracy, it especially supported mountain deities and recognized the divinity of kings. The common people, like the rest of Central Asia, had an active folk religion with a multitude of 'gods of the everyday world' (*'jig rten pa*). After Buddhism became the state religion in 779, Bon followers were persecuted during the eighth and ninth centuries. In the early eleventh century, gShen-chen Klu-dga (996–1035) claimed the rediscovery of texts (*gter-ma*), establishing a Bon canon. This organized Bon evoked the past through the legendary figure of gShen-rab, who propagated Bon before Buddhism and became the key figure in devotions. The fourteenth century brought written texts and Bon's own Kanjur and Tanjur; by the early fifteenth century monasteries were being established. A dynamic religion, Bon constantly borrowed and adapted itself to both the indigenous folk religion and Tibetan Lamaism to remain an active Tibetan religion (see further on Bon in Chapter 1, Part Three, above).

Religion among the Uighurs, Kyrgyz and Kitan

THE UIGHURS

According to the Uighurs' legend of origin, at the confluence of two rivers a mound of earth formed between two trees and, like a pregnant woman, gave birth to five male children, one of whom was chosen to become the Khan of the Uighurs. Later a maiden came down through the smoke-hole of his tent and during the last night of her many visits, she laid the boundaries of his kingdom from east to west and bade him care for his people. The indigenous religion already in existence among the Türk tribes remained. The multiplicity of supernatural beings allowed outside influence to penetrate and gain acceptance. Although both Manichaeism and Buddhism had been present in the Türk empire, which was continued by the Uighurs (743–840), only Manichaeism would gain a prominent position among the Uighurs of the Mongolian steppe, when their ruler Mou-yü (759–90) converted to Manichaeism in 763 and made it the state religion.

When the Uighurs were forced to abandon the Mongolian steppe for the Chinese borderlands and the Tarim basin, Buddhism came to have a much greater impact, as also did other cultures and religions. Especially in the Uighur kingdom of Kocho (850–1250), a cosmopolitan society flourished due to the extensive contact with foreign peoples, religions and ideas that were spread along the Silk Route of Central Asia. Religious tolerance permitted the penetration, to varying degrees, of Manichaeism, Buddhism and Christianity, which lasted to the end of the kingdom of Kocho. Subsequently, Islam spread widely among the Turkic peoples of Central Asia, not only in its institutionalized forms but also penetrating even to the nomads of the Dasht-i Kïpchak steppes with the rise of the Sufi orders at the end of the fourteenth century.

THE KYRGYZ

After the Uighurs were ousted from the Mongolian steppes in 840 by the Kyrgyz, the region was not again dominated by a single tribe or confederacy until the Kitan occupation in the tenth century. Less sophisticated than the Uighurs, the Kyrgyz had little contact with foreigners and their ideas, as reflected in the old forms of their religion. One legend of origin for the Kyrgyz from a Chinese source relates that they were descended from a child born from the union of a spirit and a cow and that he lived in a cavern. Muslim sources have offered a quite different origin, combining the legends of peoples issued from the sons of Noah and Central Asian steppe wars.

Contemporary accounts of the Kyrgyz from Muslim geographers and travelling merchants, in addition to the records of the T'ang dynasty in China, have provided the earliest descriptions of shamans (*qams*) in trances. At a set

time during the year, the shaman would be called upon to foretell the future, including weather conditions, and success or failure for crops or battles. The Kyrgyz burned their dead and used fire for purification. Animal worship existed, as did tree worship, and there was a concern for elements other than fire, especially the wind.

THE KITAN

The Kitan, especially during their rule over northern China during the Liao dynasty (907–1125), came more under the influence of Chinese religion and ethics derived from Confucianism, Taoism and Buddhism, while Manichaeism and Nestorian Christianity were of only minor importance; these served only to complement the indigenous religion of the Kitan. There was a division between the religion of the shamans who practised for the people and that of those who held political power, especially the emperor. The popular religion emphasized a multitude of gods and spirits and 'powers', often embodied in trees; mountains and stones; animals; the cosmic bodies of Heaven, Earth and Sun (but not the Moon); the Sacred Fire which was probably the forerunner of Mongol fire ceremonies; and even banners, magic arrows and drums. Through the aid of professional shamans and numerous other religious figures, the supernatural was summoned for the good and invoked to ward off danger or evil, to foretell the future, to change the weather and so on. Sacrifices, divination, scapulomancy and exorcism were all practised. The souls of the dead were now far more important than in early Turkic popular religion. The cosmological orientation was to the east, which had an almost magical power. For the leadership, the tribal ancestors – a woman in a cart pulled by a grey ox and a man on a white horse – and spirits of the imperial clan played a major role in establishing the legitimacy of the rule and increasing its strength. The ceremonial of the enthronement of an 'emperor' involved his rebirth and recognition prior to investiture. For state decisions, the emperor often invoked the aid of the supernatural, thus functioning as a kind of high priest, like the Kitan tribal chieftains who had in the past also performed a religious role.

Part Two

Manichaeism and Nestorian Christianity

(H.-J. Klimkeit)

Manichaeism

The career of Mani and the early history of his faith have been described in Volume III, Chapter 17, Part Two. When Islam became the ruling religion and overarching political authority in Iraq and the East, the numbers of Manichaean believers steadily declined. Ibn al-Nadīm, writing in the tenth century, speaks of just a few Manichaeans still living in the Baghdad of his time. On the whole, Manichaeism was never a threat to Islam, which did not have to ward off a dangerous heresy, as did the Western Church; hence the Islamic sources on the Gnostic religion are on the whole more objective than the writings of the Christian Church fathers, though they are not always accurate.[16]

It seems clear that the eastern Manichaeans, who used Middle Persian and Parthian as their 'church languages', but who also created a literature in Sogdian, Uighur (Old Turkic) and even Chinese, remained faithful to the basic tenets of Mani's teachings, in spite of all the adaptations to Buddhism in the outward presentation of their teaching. This process of adaptation had already set in with Mar Ammo, the disciple Mani sent to eastern Iran. It is he whom the eastern Dinawariyya school of Manichaeism saw as its founder, though the actual founder was the teacher Shād Ohrmazd in around 600. The eastern Manichaean documents we possess stem from this school, which grew as refugees from the Sasanian and then the Islamic lands moved east to other communities of brethren in the faith. Here, in spite of the high esteem in which Mar Ammo was held, it was Mani who became the central figure in the religion he founded. He was virtually deified, called upon as a Buddha, the 'Buddha of Light', and he was celebrated as a central redeeming God. An indication of this is that, as in the west, the Bema festival, which commemorated Mani's death and his return into the World of Light from which he came, remained a central ceremonial occasion of the church. It was increasingly described in terms reminiscent of Buddha's entry into Nirvana, and a whole cycle of hymns attests to this fact. Besides Mani, Jesus, the Bringer of Saving Knowledge, also had an important role in eastern Manichaeism. Though the Manichaeans distinguished between the transcendent bringer of gnosis, Jesus, and the historical Jesus, called 'Jesus of Nazareth', the lines of distinction are often blurred, especially when he is called 'the Messiah Jesus', the 'Buddha Jesus' or the 'Messiah Buddha'.

16. On Manichaeism in Islamic sources, see Colpe, 1954; Browder, 1992, pp. 328–33.

It was mainly the Sogdians, living outside their original homeland and engaging in trade along the Silk Route up to China, Mongolia and even Siberia, who were instrumental in spreading Manichaeism, as well as Buddhism and Nestorian Christianity, to peoples of Central Asia such as the Türks. The Sogdians created literatures for these religions, and it is particularly in the Turfan oasis that many Sogdian Manichaean texts have been found.

The presence of a Sogdian Manichaean community in China after the appearance, at the Chinese court, of a high Manichaean teacher in 694 was to be of decisive importance for Central Asia. For when the king of the Uighur Türks, who was later to assume the title Bögü Khan (or Bilgä Khan; Chinese, Mou-ye) and whose empire spread from the Mongol steppes to the oasis towns of the northern Silk Route, met Manichaean 'elect' (i.e. monks) in the Chinese city of Lo-yang in 762, he was converted to their faith and made Manichaeism the state religion of his kingdom.[17] A Uighur manuscript from Turfan (TM 276), written by Manichaean 'elect', makes it clear that the king came under pressure from Manichaean Sogdian circles when he started to waver in his new faith because of opposition from the nobility, but that he finally accepted the religion 'anew', also urging his people to embrace the Manichaean faith. The opposition, led by an unnamed *tarxan* (high official), seems to have won the day for a short while until Bögü Khan and his family, as well as a number of his followers, were slaughtered in 789 and another ruler, Tegin (Chinese, To-lo-ssu), who did not identify with the Manichaean cause, assumed power. But from 795 onwards power was assumed by rulers whose titles, so far as they are preserved in Turkish, reveal their Manichaean inclinations, deriving their 'charisma' (*qut*) either from the sun god (i.e. the Manichaean 'Third Messenger') or the moon god (i.e. the Manichaean Jesus) or from both.

Around 840 the kingdom of the Uighur Türks was destroyed by the Kyrgyz, the traditional enemies of the Uighurs, who lived further to the north.[18] Some Uighurs fled to the south-east, to the Kansu (Gansu) province of China, where their descendants still exist, being known as the 'Yellow Uighurs'. They soon turned to Buddhism, and eventually to the Lamaistic form of this religion. Others fled to the oasis towns of the northern Silk Route, notably to Turfan, where a Uighur kingdom was established around 850 and continued in existence until about 1250; this was the Uighur kingdom of Kocho. Up to the beginning of the eleventh century, many of their kings professed Manichaeism, although apparently not to the exclusion of Buddhism, which increasingly gained in importance.

A number of prayers for the Uighur ruler and the royal family have been preserved,[19] and this is indicative of the good relationship between the reli-

17. Schlegel, 1896, pp. 49, 51.
18. Golzio, 1984, p. 63, gives the date of the destruction of the Uighur empire as 848.
19. Klimkeit, 1993, Ch. XIV.

gious institution and the state at that time. Both were regarded as supporting each other, and a repeatedly used formula describing this relationship speaks of 'the religion within' (i.e. the inner side of life) and 'the state without' (i.e. the outer side of life). The strong position of the Manichaean clergy is highlighted by an officially stamped charter drawn up for a Manichaean monastery, which regulates life in the monastery, where the 'elect' (referred to as 'lords', *tängrilär*) have servants of various orders at their disposal and where monastic lands and gardens are rented out to farmers and peasants.[20]

The Manichaean literature from Turfan and Dunhuang edited so far is wide-ranging and varied. Besides the Chinese texts mentioned, it includes hymns of various types (on the chief Manichaean gods, on Mani and Jesus, on church leaders and fathers of the church, on the plight of man and his salvation) as well as confessional texts, liturgical formulae, prayers, invocations and incantations, parables, narratives, legends and historical texts. There is a noticeable absence of polemics against the Buddhists, although we do meet with the censuring of idol worship. We can detect in this literature an increasing use of Buddhist terminology and imagery; whereas the Middle Persian literature lacks such aspects, Buddhist terms do occur in the Parthian texts and they can become quite prominent in Sogdian, in Uighur and particularly in Chinese Manichaean literature. Thus Mani is repeatedly referred to as a 'Buddha' (*burxan*), as are his forerunners in the repeated revelations that the 'Realm of Light' imparts to man prior to his time. The knowledge Mani reveals leads to the Realm of Light, which is equated with the Buddhist Nirvana, or Parinirvana (highest Nirvana), and so on. As has been explained, despite such borrowings, the Manichaeans remained faithful to the basic tenets of their religion, for such terminological borrowings imply the mere use of Buddhist terms, their contents being Manichaean. Even when Buddhist and other foreign narratives are taken up and employed – and this was done on a wide scale – the stories become parables, which are given a Manichaean meaning.[21] The same is true of artistic forms adopted from Buddhism.

The demise of Manichaeism in Central Asia is difficult to trace. The extant literature gives little indication of the reasons for this decline. It must have set in after the period covering the end of the tenth century and the beginning of the eleventh, when three kings, who are mentioned in the postscripts to the Manichaean texts of Turfan, ruled successively.[22] Texts with late linguistic features often express the hope for a renewal of the Manichaean church and faith. One late Uighur document (M 112) tells us that a Manichaean monk experiences 'deep distress' at the destruction of a Manichaean monastery, the ornamentation (*itig*) of which was removed and used for the embellishment of a Buddhist *vihāra* (monastery) at the command of 'the crown prince'. He

20. Klimkeit, 1993, pp. 352–6.
21. Schmidt-Glintzer, 1987*b*, pp. 79–90; Bryder, 1985; Asmussen, 1966, pp. 5–21.
22. Zieme, 1992*b* (n. 19), pp. 324 et seq.

partially restores the images, hoping that 'coming living beings may like it'. The text, though fragmentary and very difficult to read, gives us a hint of what one of the reasons for the decline of Manichaeism may have been: the leading political authorities leaned increasingly towards Buddhism or were won over to that religion by the Buddhist community. The Manichaeans suffered a decline in their worldly support, on which they depended. A Manichaean centre at Sängim near Turfan gives the impression of being almost a fortress; hence the community of faithful 'elect' would have retreated to bastions and points of withdrawal such as Sängim and Toyuk, near Turfan, where they would have held out as long as possible, increasingly taking up elements of the Buddhist faith, which became ever more dominant. As early as the tenth century, a Chinese envoy to the Turfan region, Wang Yande, who visited Kocho in 981, speaks of more than 50 Buddhist monasteries in the region.[23] Archaeological evidence also shows how the Buddhists triumphed. Originally, Manichaean caves were fitted with walls to cover the old Manichaean murals, and on these, then, Buddhist scenes were depicted, as in various instances at Bezeklïk. The exact date of such changes is difficult to determine, but we can assume that this would have occurred after the last flowering of the Manichaean faith at the beginning of the eleventh century.

As indicated, the Manichaeans who survived seem to have been open to very syncretistic forms of religion, increasingly adopting Buddhist forms of expression in literature and art. Probably the last strains of Manichaeism in Central Asia simply merged into Buddhism, gradually losing their own identity.

In China, even after the great persecutions of foreign religions in 845, Manichaeism continued to exist in the southern coastal province of Fukien, appearing at times as a subversive cult, at times in the garb of Taoism or other religions. Here it lasted until the sixteenth century, 1,000 years longer than in the Roman empire.[24]

Nestorian Christianity

Early Christianity in Iran

The history of Christianity in Sasanian Iran, and from there, its extension into Central Asia and beyond, has been given in Volume III, Chapter 18, Part One. This eastward spread of Christianity was determined by the directions taken by the Silk Route. Especially from Merv, Nestorianism spread to Sogdia, to the Türks and the Sogdians between the Oxus (Amu Darya) and the Jaxartes (Syr Darya) and to adjacent areas. In Sogdia proper, especially in the cities of

23. Geng Shimin and Klimkeit, 1985, pp. 7–10.
24. For the history of this development, see Lieu, 1992, Ch. IX; Klimkeit, 1986, pp. 113–24.

Tashkent, Samarkand, Bukhara and so on, there was, however, a revival of regional Zoroastrianism between the sixth and the eighth century, and traces of a Nestorian presence are scant here, though not altogether absent.[25] We hear of a Nestorian metropolitan in Samarkand in the eighth century, but it is difficult precisely to date the beginnings of Christianity in that city, as it is in the other cities of the area.

It seems that it was mainly the Sogdians living outside their homeland, in other words traders and settlers at major points along the Silk Route, who turned to the world religions of Buddhism, Manichaeism and Nestorian Christianity. In West Turkistan, the western part of Central Asia, there were apparently various Turkic tribes who converted to Christianity. It is clear that the Nestorian mission gained new impetus under the Catholicos-Patriarch Timothy I (eighth century), who had monks systematically trained, including in the knowledge of languages, for missionary purposes. He tells us in one of his letters that 'a king of the Türks' has been converted, and he even speaks of Christians among the Tibetans and the Chinese.[26]

Contiguous to Sogdia was Semirechye, the 'Land of the Seven Rivers', the area south of Lake Balkhash. It is in this area that two extensive Christian cemeteries have been found; they contain hundreds of gravestones, depicting crosses and inscribed with Syriac writing. Although the language of the inscriptions is mainly Syriac, there are also Turkic inscriptions, written in Syriac script.[27] The dates of the inscriptions range from the mid-ninth to the mid-fourteenth century, showing that Nestorianism was still alive at the time of the Islamic domination of this area. It also becomes clear that the plague which raged in Central Asia during the first half of the fourteenth century was one of the reasons for the decimation of the Christian community. Shorter Turkish inscriptions in Syriac script have also been found in Inner Mongolia.[28] The tombstone inscriptions of Semirechye are supplemented by various archaeological finds, among them the remnants of a Nestorian church from the eighth century in Ak Beshim (Suyab) in the Ferghana valley.[29]

In the eastern part of Central Asia, in East Turkistan, Nestorian Christianity was well established in such oasis towns as Turfan. The remnants of a Nestorian church have been found in the ancient Turkish city of Kocho, capital of the kingdom of Kocho (*c.* 850–1250). Even some paintings from the church walls, including what is referred to as a 'Palm Sunday scene', are preserved.[30] Remains of a monastic library have been found at a site called Bulayik, north

25. Klimkeit, 1994, pp. 477–88.
26. Hunter, 1992, pp. 362–8, esp. pp. 366 et seq.; Hage, 1978, pp. 364 et seq.
27. Chwolson, 1886; 1890; 1897; Saeki, 1951, pp. 408 et seq.
28. Groenbech, 1939–40, pp. 305–8.
29. Clauson, 1961, p. 3.
30. Le Coq, 1979, Table 7.

of the ancient city of Turfan, including documents in Syriac, Sogdian and Old Turkic (Uighur).[31] They include not only translations (in Syriac and Sogdian) as well as bilingual biblical texts (Syrian/Sogdian), but also liturgies, portions of a church history, legends about martyrs and various works from the wide range of Syriac and even Coptic literature.[32] In addition to Turfan, the presence of Christians is attested in such towns as Aksu, Bai and Hami. Of course, Dunhuang has also preserved a number of Christian documents, notably in Chinese. We shall return to these at a later point. In Inner Mongolia, the ancient Tangut capital of Karakhoto, a centre of Tangut Buddhism, extending over the eleventh to the thirteenth century, was also inhabited by Nestorians, as is revealed by documents found at the site. The Christians among the Tangut (whose capital was Karakhoto) are described as deeply religious and earnest by two Turkic Nestorian travellers who passed through the area on their way to Jerusalem, the monk Marc and the learned Rabban Sauma.[33]

With respect to Mongolia, where remnants of a Nestorian church have been found at Olon Sume in the Onghot area, it is difficult to ascertain how long Christianity remained alive among individual tribes and in particular cities. Of the ethnic groups attracted by Nestorianism, certain basically Turkic tribes were notable.[34]

Two originally Turkic tribes that were Mongolized over time were the Kerait (Kereyit) and the Naiman, living south of Lake Baikal, and these were to be of great importance in the influence of Nestorianism on the Mongols. The Kerait seem to have been converted at the beginning of the eleventh century, the Naiman probably shortly after that time.[35] Contemporary Western travellers to the centre of Mongol power in the steppes of Central Asia tell us of the position of Nestorians among the Mongols. It appears that they played a vital role in the history of the Mongol empire, both in Central Asia and in China. Besides being priests and monks, the Nestorians also followed worldly callings, being respected physicians and civil servants, scholars, artists and craftsmen. The wives of several prominent Mongol rulers are known to have been Nestorians.

The Nestorians in China

The presence of Nestorians in China is mainly confined to two periods, the T'ang and the Yüan or Mongol period. According to the bilingual (Chinese/

31. Asmussen, 1982, pp. 11–29; Sims-Williams, 1992, pp. 43–61.
32. For a survey of the Syrian texts, see Maróth, 1991, pp. 126–8.
33. Budge, 1928, p. 138.
34. For detailed reports on areas, tribes and places where there are testimonies of Nestorian Christians, see Sachau, 1919; Hage, 1977; Hunter, 1992.
35. Hunter, 1989–91, pp. 142–63; Taube, 1989, pp. 104 et seq., 141 et seq.

Syriac) inscription of Si-an-fu, dating from 781, the first Syrian monk, named A-lo-pen, arrived in China in 635. The Chinese part of the inscription gives us a survey of the history of Nestorianism in China during the previous one and a half centuries. It becomes obvious that the western religion was tolerated, and even promoted to a certain degree, by early emperors of the T'ang dynasty (618–907). It also becomes clear that a monastic type of Christianity had spread in China by the time of the inscription. On the whole, however, Nestorianism remained a religion for foreigners. Nevertheless, a list of writings given in the inscription, and also manuscripts of important Nestorian texts found at Dunhuang, make it clear that a Chinese Christian missionary literature was created at this time, including translations of the Gospels. This first phase of Nestorianism in China came to an end in the middle of the ninth century, when an imperial edict, issued in 845, sought to eliminate all foreign religions. Although this was mainly directed against Buddhism, the edict had drastic effects on Nestorianism, which lost its basis once the monastic centres and churches were closed, so that monks who were sent to China by the Catholicos-Patriarch in Iraq in the second half of the tenth century no longer found Christians there.

It was not until the advent of the Mongols that a second period of Nestorian expansion in China began. As mentioned above, whole tribes subjugated by the Mongols or integrated into their confederacy were Nestorian, and prominent Nestorian laymen (often people of Turkic race and language) played an important part in several walks of life. At the time of Qubilay Khan (1260–94), the first Mongol emperor to rule over China, there were influential Nestorians among the high officials of the court. Qubilay, like his brother Möngke, had a Nestorian mother. Christians, like the adherents of other religions (Buddhists, Manichaeans, Muslims), profited from the fact that the Mongols, originally adherents of a shamanistic type of religion, were tolerant towards other religions and even held discussions at their courts by representatives of various faiths. In this atmosphere, we have signs of various types of syncretism. In the Dunhuang texts, the contents of the Christian faith are expressed in Buddhist and even Taoist terms, and there are signs of an amalgamation of Nestorian and shamanistic practices. Furthermore, Nestorian gravestone inscriptions from central and southern China may be accompanied by Christian and Buddhist or Taoist symbols, the symbol of the cross often being connected with the lotus, and at times with clouds, rocks and so on. The language used here is often Turkic, written in Syriac or Uighur letters, but we also find bilingual inscriptions written in Chinese and Turkic.[36] A highlight of eastern Nestorianism was the fact that a young monk of Turkic origin, who had studied with the venerable Nestorian sage, Rabban Sauma, at Khanbalïk (Peking), was

36. For inscriptions in southern China, see Enoki, 1984, pp. 45–71; Murayama, 1964, pp. 394–6; 1984, pp. 77–81.

elected Catholicos while on a pilgrimage to the Near East, adopting the ecclesiastical name of Yaballaha III.

The end of Nestorianism in China came with the collapse of Mongol power there in 1368. Though professed not only by monks and clerics but also by men of diverse professions, Nestorianism had not really taken root in Chinese soil to the extent that it could survive the anti-foreign reaction that came with the expulsion of the Mongols.

Zoroastrianism

For the history of the faith of Zoroaster in Iran and such eastern fringes of the Sasanian empire as Bactria, Sogdia and Khwarazm, see Volume III, Chapter 17, Part One. The fact that Zoroastrianism spread to China, where it found adherents mainly among foreign traders, does not necessarily mean that it gained a foothold along the Silk Route in places between Sogdia and China. Of the many Iranian manuscripts found at Turfan and Dunhuang, virtually all are Manichaean, the one exception being a fragment of the Sogdian version of the Rustam legend, and even this story could also have been used by the Manichaeans to illustrate their own religious truths. A connection between Zoroastrians in Sogdia and Iran proper in early Islamic times is, however, indicated by a source from the Muslim period, which tells us that the Sogdians from Samarkand asked their co-religionists in the Iranian centres of their faith for advice on the disposal of their dead; it is improbable that such connections only existed at the time of Islam.

At the time of the Indian king Ashoka (265–232 B.C.), the teaching of the Buddha spread from the central Gangetic plain as far as Ceylon to the south and Kandahar in today's Afghanistan in the north-west; for the subsequent history of Buddhism in Central Asia, East Turkistan, Bactria and Gandhara, see Volume III, Chapter 18, Part Two.

Hsüan-tsang, a Chinese Buddhist monk of the early seventh century, reports on the other Bactrian centres of Buddhism. Some of these we know from archaeological remains, such as Bamiyan and the monastery of Hadda near Jalalabad. Other centres he mentions – such as the monasteries at Balkh, where there were, according to his report, 100 establishments with 3,000 monks – have not been preserved, so far as is known. This ancient Bactrian capital was even called 'little Rājagriha', as opposed to the Rājagriha of Magadha, which was a focus of the historic Buddha's activity.[37]

West of Bactria lay Iranian Parthia, essentially Khurasan and the Caspian region. The fact that there must have been a Buddhist influence on this region,

37. Beal, 1973.

although limited, is evidenced by the use of Buddhist words borrowed from Sanskrit in Parthian Manichaean texts. But there is also some archaeological evidence for a certain Buddhist penetration into Parthia; thus remnants of a monastery, with stupa, have been found at Merv. The most celebrated representative of Parthian Buddhism was a Parthian prince who had grown up in Bukhara, converted to Buddhism and gone to China, where he translated a number of Indian Buddhist scriptures into Chinese; his name is given in Chinese as An-Shih-kao (second century).

The Sogdians of Transoxania never had a united kingdom of their own, but the Sogdian city-states were able to maintain a considerable amount of freedom and independence, even under foreign suzerainty. Sogdians were among the first to translate Indian Buddhist scriptures into Chinese. The Sogdians, being a people with far-reaching commercial contacts, had colonies of traders all along the Silk Route as far as Mongolia and China. In the Old Turkic inscriptions from Mongolia, stemming from the eighth and ninth centuries, there is reference to Sogdian settlers in that region. There is a bilingual Sogdian/Sanskrit inscription of Bugut, which speaks of erecting 'a great new *sangha* [community of monks]'. Unfortunately, the accompanying Sanskrit text, written in Brāhmī letters, is too damaged to be legible, but the inscription undoubtedly points to the fact that Sogdians living outside their homeland not only had contact with Buddhism but had to some extent even converted to the Indian religion. This is quite opposite to the situation in Sogdia itself, where, as noted above, a regional form of Zoroastrianism maintained itself until the advent of Islam in the eighth century, even experiencing a certain revival between the sixth and the eighth century. It is only on the fringes of the Sogdian homeland such as in Ak-Beshim in the Ferghana valley and Ajina-tepe in the Wakhsh valley that remnants of Buddhist establishments have been found,[38] although the Sogdians traded in the upper Indus valley, as inscriptions show,[39] and such Indian motifs as stories from the *Mahābhārata* [Great Epic of the Bharatas] are depicted in the Sogdian art of Panjikent.

It was mainly the Sogdians abroad, then, who adopted Buddhism. Thus a number of Sogdian Buddhist texts were found in the oasis towns of Turfan and Dunhuang, although these are documents translated from Chinese in the T'ang period, and no earlier Sogdian Buddhist texts are extant.[40] (The earliest Sogdian texts that we possess, those of Sogdian traders found near the Great Wall, reveal Zoroastrian names.) The Sogdian Manichaean texts contain Indian words borrowed from Buddhism, a fact which could point to the existence of

38. Clauson, 1961, pp. 1–13, esp. p. 3; for Ajina-tepe, see Litvinsky and Zeimal, 1971.
39. For the Sogdian inscriptions in the upper Indus valley (fifth–sixth century), where the names are of Zoroastrian rather than Buddhist provenance, see, for instance, Humbach, 1980, pp. 201–27.
40. For Sogdian Buddhist literature, see Utz, 1978.

a Buddhist literature in Sogdian, perhaps even before the T'ang period. The reason why Sogdia itself did not adopt Buddhism may be that, as in other Zoroastrian regions, it was wedded to a national religion that was basically optimistic and world-oriented, hence the Buddha's message of the fleeting character of the world, and of suffering, would not have taken root here.

As noted in Volume III, Chapter 18, Part Two, in East Turkistan, with its southern and northern routes circumventing the arid Taklamakan desert, most settlements on these routes had an outspokenly Buddhist culture. Thus to the east of Yarkand is the oasis of Khotan, with its various satellite sites such as Dandan Oïliq. According to tradition, Khotan was Buddhicized by Ashoka's missionaries, but that probably antedates the actual introduction of Buddhism, which could have occurred in the first century B.C. In the first centuries A.D. the Buddhist schools of the Sārvāstivādins and Mūlasārvāstivādins are attested, as well as the Dharmaguptas. Not much later, Mahāyāna Buddhism was introduced, and this is the type of religion which the Chinese traveller Fa-hsien met when he visited the oasis in around 400. At a later period (seventh–eighth century), Vajrayāna also left its marks on literature and art. Besides the Gāndhārī language that was used by the Dharmaguptas and the Sanskrit that was employed by the various schools mentioned above, a literature in the regional language was created, i.e. in Khotanese Saka. This includes not only translations from Sanskrit but also indigenous compositions and poems on Buddhist themes.[41] Archaeological and artistic remains from Khotan reveal that this centre of Buddhist culture developed its own, indigenous forms, even when it was drawing on common Buddhist themes.

Of special importance were the Buddhist centres along the northern route. Of these, including Kucha, Tumshuq, Shorchuq, Karashahr and Turfan,[42] the first and the last are actually the most significant, both in terms of manuscripts found and archaeological remains preserved.

Kucha and Karashahr were Tokharian regions, those of the ancient Indo-European people who adopted Buddhism so completely that virtually no trace of their pre-Buddhist religion remains. As opposed to Khotan, Kucha and Karashahr were focuses of Hīnayāna Buddhism represented by the Sārvāstivāda school, though Mahāyāna gained ground in Kucha during the fifth century. The main cultural achievements of the Kucheans were artistic in the widest sense. Their music was particularly appreciated at the Chinese court; musicians are frequently depicted in the paintings of Kïzïl and Kumtura near Kucha. The artistic tendencies that come to the fore in the paintings of these places are also remarkable. While incorporating Indian and Iranian elements, they reflect the development of an independent style of painting and sculpture that lasted up to 640, when a Chinese army took over the city. From that time onwards,

41. Emmerick, 1992.
42. These are dealt with in Yaldiz, 1987, Chs. IV–VII.

strongly Sinicized forms appear in the art of the major monasteries, although Indian-oriented Tokharian Buddhism remained alive long after this date and the continued knowledge of a wide range of Buddhist literature is reflected in the later works of art. It must have been around 1200 that Islam took over Kucha and Karashahr, and with its arrival, the Buddhist era came to an end there.

In the Turfan depression, Buddhists lived side by side with Manichaeans, Nestorian Christians and later, increasingly, Muslims, so that Turfan was a microcosm reflecting a greater, pluralistic world. Here documents in 16 different languages, written in 25 different types of script, were found by German expeditions that worked in the area between 1902 and 1914; the Buddhist texts stem from a period of about 1,000 years, from the fourth to the fourteenth century.[43] It was only at the end of the fifteenth century that the ruler of Turfan became a convert to Islam.

In the heyday of Turfan Buddhism, Chinese, Sogdians, East Tokharians and, increasingly, Turkic Uighurs confessed the faith, both in its Hīnayāna and Mahāyāna forms. Many Uighurs settled in the Turfan basin, especially after their kingdom had been destroyed in the Mongolian steppes in 840, establishing there the little kingdom of Kocho (*c.* 850–1250). The rulers of this kingdom were at first Manichaeans, and then, increasingly, Buddhists. Rich donors, often portrayed in the cave paintings of the Turfan area, supported the literary and artistic work of the Buddhist monks, reflecting a rich literary and artistic tradition that continued up to Mongol times (thirteenth–fourteenth century).

Finally, of especial importance for our knowledge of the faiths of the Tarim basin is Dunhuang, situated at the point where the southern and the northern routes converged at the eastern end of the basin in the Lop Nor region. For travellers coming from the west, it was the gateway to China, the route from here leading eastwards through the Gansu corridor to the Chinese homeland. It is understandable that in this precariously isolated situation it was necessary to keep the roads to that homeland open. Yet due to its geographic position and to the fact that it was never taken over by any Islamic power, there are preserved here paintings and scriptures mirroring 1,000 years of religious and cultural history from the fourth century onwards.

Hinduism

Many Hindu deities (*devas*) are referred to in Buddhist texts, including those from Central Asia, written in Sanskrit (and hence originally stemming from India) as well as in Central Asian languages. But the functions of the Hindu deities, including Indra and Brahma, differ when depicted in the Buddhist texts.

43. Fuchs, 1926, pp. 124–66.

They become subservient to the Buddha and his teaching. They live in the realm of the gods, which is just one of five or six areas of rebirth, besides the areas of men, of hungry spirits (*pretas*), of animals and of beings from hell. Sometimes the area of the demi-gods is referred to as a sixth realm. At some point, even the gods will have to leave their heavens and be reborn in another form of existence, hence they are bound to the cycle of rebirth, of *samsāra* (literally, 'wandering', the continuous process of birth and death for life after life in the various forms of existence), like all other living beings.[44] Hindu deities appear in the Manichaean art of Central Asia, being depicted prominently in two miniature paintings.[45] In one of these (IB 4979), they can be clearly identified as Shiva (with a third eye), Brahma, Vishnu (with a boar's head, as *varāha*) and Ganesha.[46] These probably represent protective deities of the type often invoked in the colophons to Uighur Buddhist works.[47] Quite in accord with these texts, the colophon of one Uighur Manichaean text invokes protective deities, adding in typical Buddhist fashion: 'by virtue of this meritorious good deed [of having a text copied, etc.] . . . may their divine powers and their communities increase'.[48] This, then, is the wish also expressed, implicitly or explicitly, when Hindu deities are invoked in Buddhist colophons. Thus in a colophon to the *Maitrisimit* (ninth century), the Hindu gods Brahma and Indra, as well as the four Lokapālas (the guardians of the four quarters), Vishnu, Maheśvara (Shiva) and Skandha-Kumāra, are called upon,[49] and in a colophon to a text on Avalokiteśvara, a whole series of Hindu deities and spirits are invoked: Brahma, Indra, Vishnu, Maheśvara, Skandha-Kumāra, Kapila and Manibhadra. Quite in accord with this usage is the fact that the gods of the Indian type, with multiple arms and heads, appear not only in the Buddhist art of East Turkistan (third–thirteenth century), but also in the Sogdian art of local Zoroastrianism (sixth–eighth century).[50]

Apart from a presence in Kushan Bactria, Hinduism, unlike Buddhism, seems to have made little inroad into Central Asia north of Bactria. Even when Brahmins are depicted in the art of Central Asia, this is within the setting of Buddhist art, where we can even observe a tendency to present such figures as caricatures,[51] quite in line with the criticism of them in the Buddhist scriptures.

It was in the regions north of Gandhara that there seems to have been a last flowering of Buddhism, possibly to the disadvantage of Hinduism, in the

44. Schlingloff, 1988, pp. 167 et seq.
45. Klimkeit, 1980, pp. 179–99.
46. Banerjee, 1970, pp. 17–23.
47. Zieme, 1992*b*, pp. 322 et seq.
48. Clark, 1982, p. 190.
49. Tekin, 1980, pp. 25 et seq.
50. See, for instance, Azarpay, 1981.
51. Gabain, 1979, pp. 247 et seq.

eighth century, as Türks, having come from Central Asia proper, fervently adopted that religion. This is the impression we gain from the travel account of the Korean monk Huei-ch'ao, who travelled from India to China in the years 723–9. He is very informative on various aspects of life in the countries through which he passed or that he heard about; he speaks of Hindus ('Brahmins') in Gandhara, but makes no mention of them with respect to areas further north.[52]

Part Three

THE ADVENT OF ISLAM: EXTENT AND IMPACT

(E. E. Karimov)

As the religion of Islam, brought by the Arabs, penetrated the Central Asian region, it began to influence the development of indigenous religion and itself absorbed some of the earlier cultural traditions of Central Asia. Islam was incorporated into the life of the local peoples, and as the religion of the conquerors, it became the local religion in a lengthy process that was not without its difficulties; but this process enriched Islam and provided an impetus for its subsequent development.

As noted in Chapter 3 below, scholars from Khurasan and Transoxania made a great contribution to the understanding of the Qur'an and its interpretation, i.e. commentaries on the Qur'an, and to the study of *hadīth* (Islamic tradition). The region under consideration produced the celebrated traditionist Muhammad al-Bukhārī, compiler of the collection of sound *hadīths*, *al-Jāmi*ᶜ *al-sahīh* [The Sound Collection] (usually abbreviated to *al-Sahīh*), which became regarded as canonical and second in importance only to the Qur'an for most Sunni Muslims; and other authors of the six compilations of *hadīth* recognized as the most authoritative in Islam, such as Muhammad al-Tirmidhī (d. 892) and al-Nasā'ī (d. 915).

The study of Muslim jurisprudence, or *fiqh* (lit. knowledge), was also developed greatly in Central Asia, as is detailed in Chapter 4 below. The convergence between Islam and the indigenous theological substrata was a process effected both by the *faqīh*s (Islamic lawyers and legal experts) and by the Sufis or Islamic mystics, and it was thanks to their efforts that there was an 'internal' Islamization of the peoples of Central Asia, who had formally converted to Islam.

52. See Fuchs, 1938, pp. 425–69. Huei-ch'ao's reports of the flowering of Buddhism among the Türks of what is now Afghanistan are confirmed by Wu-k'ang, who travelled to India in the years 751–90, but he has nothing to say on Hinduism.

Two significant events should be noted in the expansion of Islam in Central Asia during the late Umayyad period: the uprising in Samarkand in 728; and the movement of al-Hārith b. Surayj in Khurasan and Transoxania in the years 734–46, this second movement being discussed in detail in Volume IV, Part One, Chapters 1 and 2.

The Samarkand uprising was preceded by the sending of groups of missionaries to Transoxania (727–9) by the governor of Khurasan, Ashras b. ᶜAbd Allāh al-Sulamī, for the purpose of converting the local population to Islam. The group was headed by a *mawlā* (a freedman or a client of non-Arab origins), Abu 'l-Saydā' Sālih b. Tarīf. This last was highly successful in Transoxania and many local inhabitants accepted Islam. However, Ashras was worried by the declining receipts of his treasury and went back on his promise not to levy the *jizya* (poll tax on the *ahl al-dhimma*, or 'People of the Book', essentially Jews and Christians) on the inhabitants of Samarkand who had embraced Islam. This caused the uprising, in which the Muslim missionaries also joined. According to the report of the historian al-Tabarī, two of their number, Abu 'l-Saydā' Sālih and Thābit Qutna (a well-known poet, brave warrior and adherent of the Murji'ites), were arrested for being active supporters of the uprising. The anti-government movement headed by al-Hārith b. Surayj which broke out in eastern Khurasan and Transoxania in 734 and was a continuation of the events in Samarkand included in its ranks members of Arab tribes dissatisfied with the policy of the caliph's governor and also proselytes from among the local inhabitants. As a result of the events described above, Murji'ite ideas spread widely among the Muslims of Khurasan and Transoxania, especially as the leader of the movement, al-Hārith b. Surayj, was himself a Murji'ite and his personal secretary was Jahm b. Safwān (d. 745), the leader of the Khurasan Murji'ites, who first appeared in the neighbourhood of Termez.

The politico-religious movement of the Murji'ites had arisen in the latter half of the seventh century. Information on its basic tenets is given by the heresiographer al-Shahrastānī and may be summarized as follows: first, a refusal to pass judgement on who had been in the right in the struggle for power and the civil warfare of early Islam, ᶜAlī or Muᶜāwiya, the rival contenders for supreme power; second, recognition that an outward profession of faith was sufficient for an individual to be regarded as a believer; and, third, a moderate attitude towards transgressors (in contrast to, for example, the Kharijites), since the Murji'ites did not regard such individuals as non-believers and trusted in the divine forgiveness of their sins.

The Murji'ite movement in Central Asia in the eighth century was associated with the struggle of the indigenous new converts to Islam for equality with the Arabs and their freedom from having to pay the *jizya*. On the doctrinal level, this found expression in an external profession of faith (recognition of the truth of God and of His Prophet Muhammad) being regarded as the main criterion of a Muslim, and observance of the religious duties as second-

ary. Thus, theoretically, Murji'ite tenets enabled people who had been obliged to forsake the religion of their forefathers and who were insufficiently acquainted with the requirements of the new religion to enjoy the status of Muslims without observing the religious duties.

We are told by al-Tabarī that participants in al-Hārith b. Surayj's movement had links with the eminent *faqīh* from Kufa, Abū Hanīfa, although this was subsequently denied by devout Sunni authors like al-Shahrastānī. Shi^c^ite heresiographers like al-Nawbakhtī subdivided the Murji'ites into four categories and placed Abū Hanīfa in one of them, that of the Iraqi Murji'ites. Certainly, people from eastern Khurasan, especially from Balkh, who went to study in Iraq were in the main students of Abū Hanīfa, and *c.* 800, when the main religious and legal schools of thought were taking shape in Sunni Islam, Balkh became a centre for the development and study of the Hanafite sect in the East. In Khurasan and Transoxania, Abū Sulaymān al-Jūzjānī (d. 823) and Abū Hafs al-Bukhārī (d. 832) began to expound the main writings of Muhammad b. al-Hasan al-Shaybānī (d. 805), whose writings set out the basic tenets of the Hanafite law school.

Following the establishment of the Samanid state (see Volume IV, Part One, Chapter 4), local Hanafite schools arose in its two main centres, Samarkand and Bukhara. Study of the *isnād*s (chains of authority supporting a *hadīth*) set out in the works of al-Kafawī provides evidence of the influence exerted by Baghdad and Balkh on the formation of the local schools in Bukhara and Samarkand. The doctrine of local theologians that arose in the struggle against 'unjustified' trends in Samarkand was later associated with the name of the scholar Abū Mansūr al-Māturīdī (d. 944–5). The appearance at the end of the tenth century of such eminent jurists as Abu 'l-Layth Nasr b. Muhammad al-Samarqandī (d. 983) and Abū Bakr Muhammad b. al-Fadl al-Bukhārī (d. 991) testifies to the high level of development reached by the Transoxanian school of jurisprudence.

A different religious and political situation came about in Central Asia as a result of the conquests of the Karakhanids. Transoxania was to some extent cut off from Khurasan, where Islam was already fairly deeply rooted, and incorporated into a state embracing the territory of the Semirechye ('Seven Rivers') region and East Turkistan, where conversion to Islam was only in its early stages and accordingly superficial. The decentralized rule established by the Karakhanids stimulated a development of local urban life in these regions, where the *faqīh*s became spokesmen for local, public opinion, as also for the rural populations. Hence we find *fatwā*s (legal opinions) from these *faqīh*s on the most varied matters, such as commercial and property questions, family and conjugal relations, and the correct performance of the Muslim cult. Such judgements of the *faqīh*s, which essentially reflected the realities of life in Transoxania in the eleventh and twelfth centuries, were embodied in more than 60 compilations on the *furū^c^ al-fiqh* (the branches of jurisprudence), one of the

best and most renowned being the *Kitāb al-Hidāya* [Book of Guidance] of Burhān al-Dīn al-Marghīnānī (d. 1197). A school of philology and theology also flourished in Khwarazm during the twelfth century with such outstanding members as Mahmūd al-Zamakshari (d. 1144). A Muᶜtazilite theologian and Hanafite jurist, he was particularly famed for his Qur'an commentary, *al-Kashshāf* [The Unveiler], which became celebrated throughout the Islamic world; see further on it in Chapter 3, Part Two, below.

The overall picture of Islam in Central Asia was thus complex and heterogeneous, reflecting the linguistic, religious and cultural variety of local society. In early Islamic times, numerous heterodox sects and protest movements had arisen in Khurasan and Transoxania, some of them combining ancient religious currents from the eastern Iranian world such as Zoroastrianism and Mazdakism with the new faith of Islam, and others expressing sectarian Islamic beliefs, often in extremist forms, such as Kharijism and messianic Shīᶜism; for these, see Volume IV, Part One, Chapters 1 and 2.

In Seljuq and Karakhanid times, Sufism began to play an increasing role in the religious and social life of the Islamic East. On the northern fringes of Transoxania, a Turkish holy man named Ahmad Yasawī (d. 1166) founded an order which came to embrace syncretistic currents from the older shamanistic background of the Türks (see on this, pp. 65–6 above). Much of Khurasanian and Central Asian Sufism, however, had close links with Sunni orthodox teaching and practice. This closeness was to be especially true of the later Naqshbandiyya order, whose founder in Transoxania, Khwāja ᶜUbayd Allāh Ahrār (d. 1490), related how, when a young child, he was profoundly disturbed by a dream in which the eminent Shafiᶜite scholar Abū Bakr al-Qaffāl al-Shāshī (d. 976) appeared before him and gave him instructions. As a young man, Khwāja Ahrār passed the long night hours in meditation at Abū Bakr al-Qaffāl's *mazār* (shrine) in Chach.

The Mongol period was a watershed in the history of Central Asia in general and of Islam in Central Asia in particular, one that altered the trend and the nature both of the social and political development and of the religious and ideological development of this region. With the arrival of the conquerors, the old machinery of the Perso-Islamic state fell into the background as did the *faqīhs*, the official representatives of Islam, who had defended that machinery of state and ensured its functioning. Many *faqīhs* and other scholars migrated to the lands of Islam further west, such as western Iran and Anatolia.

As noted above, Sufism, a more popular, more adaptable and all-embracing Islamic phenomenon, began gradually to play a more active role in the social life of the region. Its representatives prepared the ground for the restoration of a more formally organized state with Islamic forms of government based on the *sharīᶜa* (religious law). A definite stage in this process is represented by the activity of Sayf al-Dīn al-Bākharzī (d. 1261), credited with the conversion to Islam of Berke Khan of the Golden Horde; of Husām al-Dīn al-Yāghī and

Shaykh Hasan (whose names are mentioned in connection with the acceptance of Islam by the Chaghatayid Tarmashirin Khan, d. 1334); and of Bahā' al-Dīn Naqshband, Shams al-Dīn Kulal and others. All the above were representatives of *tasawwuf* (Sufism or the mystical path), and following the unification of the Central Asian region under Timur (Tamerlane) in the 1370s, the position of the Sufis became even more influential.

This does not signify that the representatives of what may be termed 'official' Islam yielded up their positions. They still had great prestige and were involved in affairs of state. Thus the *shaykh al-islāms* (spiritual heads) in Samarkand continued to carry out their role. The *shaykh al-islām* under Timur was ʿAbd al-Malik, a descendant of Burhān al-Dīn al-Marghīnānī, the author of the *Hidāya*. ʿAbd al-Malik was an admirer of Nūr al-Dīn Basīr (d. 1249), known as a representative of the Sufi school of al-Suhrawardī, and a supporter of open *dhikr* (spoken recounting of the divine names). The next *shaykh al-islām* was ʿAbd al-Awwal, the twin brother of ʿAbd al-Malik, who during the reign of the Timurid Khalīl Sultān attempted to persuade his rival Pīr Muhammad to submit to the authority of Khalīl Sultān. Later, at a decisive moment in the internecine struggle, when Khalīl Sultān was about to be defeated, ʿAbd al-Awwal handed over power in Samarkand to Sultan Shāh Rukh (1404–46).

ʿAbd al-Awwal was succeeded as *shaykh al-islām* by his nephew, the son of ʿAbd al-Malik, ʿIsām al-Dīn, who held office under Timur's grandson Ulugh Beg (1394–1449). The *muhtasib* (market inspector) Sayyid ʿĀshiq at one point spoke out in public against him, accusing ʿIsām al-Dīn of departing from the *sharīʿa*. ʿIsām al-Dīn was succeeded by his son Burhān al-Dīn. Following the murder of ʿAbd al-Latīf, the Timurid throne was occupied by Mīrzā ʿAbd Allāh, who was strongly opposed by Burhān al-Dīn. After ʿAbd Allāh's defeat in a struggle for power in the summer of 1451, Burhān al-Dīn hurriedly departed from the capital of Transoxania, without waiting for the new ruler to ascend the Timurid throne, and fled to Abu 'l-Qāsim Bābur. In 1456, however, at the invitation of Abū Saʿīd, the ruler of Samarkand, he returned and attempted to regain his former position at court in a struggle with Khwāja ʿUbayd Allāh Ahrār.

To sum up, the essential features of the Islamic faith were maintained over a period of comparative stagnation resulting from the Mongol conquest. During the fifteenth century, there was a reduction in the role of the *faqīhs* in the life of Central Asian society and an increase in the part played by the representatives of Sufism. Henceforth, this form of popular mystical Islam was to become the main vehicle for the Islamic religion in Central Asia.

Part Four

NON-ISLAMIC MYSTIC MOVEMENTS IN HINDU SOCIETY

(C. Shackle)

In keeping with the predominantly esoteric or devotional nature of the mystic movements generated within the Hindu society of northern India during the period under review, the detailed evidence necessary for their precise historical reconstruction is generally unavailable. The various movements are united only in their rejection of the ritualistic formalism of Brahminic orthodoxy so successfully formulated in the reconstitution of classical Hinduism in the Gupta period, which was to survive even the immense challenge to its values posed by the extension of Muslim imperial power from the eleventh century onwards throughout the region. While some of the later mystic movements may be regarded as having been partially prompted by this challenge, in particular the wide spread of popular Sufism, the astonishingly fecund variety of the perpetually self-renewing Hindu tradition itself is generally sufficient to account for the essentially indigenous character of all these movements. Very often, however, both their chronological origins and their sociological development must remain obscure, since we have only devotional and hagiographic texts as guides. While these, quite apart from their spiritual importance, are valuable as early records of the local Indo-Aryan vernaculars (deliberately preferred to Sanskrit, the literary vehicle of orthodox learning), they remain true to the Hindu tradition in being better records of names than of places or dates.

The *Hatha-yoga* movement

Although themselves theologically neutral, the varied cultic associations of the formidable physical techniques of *Hatha-yoga* ('yoga of force') in different periods of the religious history of India have tended to be determined by the predominant orthodoxies or heterodoxies. Thus, in the latter part of the first millennium A.D., when north Indian Hinduism had a pronounced Shaivite emphasis, *Hatha-yoga* was particularly associated with the Shaivite Tantra which was notably cultivated in Kashmir, where it continued to flourish after contracting in the face of the *Vaishnava* challenge in the northern plains. This discipline receives its most vivid vernacular expression in the Kashmiri verses of the fourteenth-century *yoginī* Lal Ded.

It was, however, the teachings based upon *Hatha-yoga* attributed to the Nāths (Sanskrit *nātha*, 'lord') which for a while represented the mainstream of mystical heterodoxy over much of northern India. Drawing upon the earlier

traditions of Buddhist Tantra notably cultivated in Bengal, which had largely escaped the intensive re-Hinduization of the central Gangetic region, this *Nāth-yoga* too has Shaivite affiliations, since the list of the nine great Nāths begins with Shiva himself, from whom the first great adepts derived their doctrines. Hardly to be reconstituted as historical personages (*c.* twelfth century?), these mythologized figures are Machchhendranāth, associated with Nepal, and his disciple Gorakhnāth, whose origins the confused later tradition places anywhere from Bengal to Panjab. It is doubtful if Gorakhnāth himself is the author of the crabbed early Hindi verses known as the *Gorakh-bānī* (dating from *c.* 1350), the principal vernacular texts of *Nāth-yoga*.

The goal of *Nāth-yoga* was the liberated state called *sahaja* (ease), to be experienced through the immortal body generated from the physical body through the practice of *Hatha-yoga*. Since all rituals and scriptures were regarded as irrelevant to this end, it was the yogis themselves who formed the focus of the cult. Revered for the *siddhis* (magical powers) thought to be conferred by an asceticism demanding the painful splitting of the ears as an initiation (hence their title of *Kānphat*, or 'Split-ear'), the *Nāth-yogis* commanded from their *maths* (monasteries) widespread awe and devotion, often being regarded in contemporary literature as a community distinct from Muslims and Hindus alike. Only from the sixteenth century did their fearsome prestige begin to fade in the face of a rapidly growing allegiance to less forbidding mystical cults.

The *bhakti* movement

The period 1300–1500 marks the true beginnings in northern India of the age of *bhakti* (devotion), when the way of salvation came increasingly to be defined as a following neither of the ritualistic prescriptions of orthodoxy, nor of the fierce techniques of *Hatha-yoga*, but of the practice of loving meditation upon God, whether He was conceived of as having the form (*sagun*) of a particular god or as formless (*nirgun*). Although by no means absolute, this theological distinction has its sociological correlate. While *sagun bhakti*, directed towards a manifestation (*avatār*) of Vishnu, especially to Krishna, tends to be associated with a Brahminic élite and social conservatism, *nirgun bhakti* largely stems from and looks towards the lower castes. To some extent, therefore, both may be regarded as typically stratified Hindu responses to the implantation of Islamic Sufism, then at its most vital, as a major presence in the spiritual life of northern India. It is, however, less helpful to search for direct Sufi influences and parallels in the formation of northern Indian *bhakti*, which more obviously derives from the earlier revival of Vaishnavism in South India, even if the chronology and precise routes of diffusion are still matters of considerable contention.

As often, literary expression generally precedes sectarian organization in the *sagun bhakti* focused upon Krishna. Jayadeva's very popular Sanskrit poem, the twelfth-century *Gītagovinda* (based upon that core Vaishnava text, the South Indian *Bhāgavata-purāna* of *c.* 900), or the Krishna songs composed in Maithili by Vidyāpati (*c.* 1400), both the work of Brahmins, are early testimonies to the erotic appeal of the Krishna cult, centred upon the loving contemplation of the god as the divine cowherd sporting with Rādhā, chief of the *gopīs* (cow-maidens), on the banks of the Yamuna in the sacred territory of Vrindavan near Mathura (south of Delhi).

The formal organization of devotional sects (*sampradāys*) closely associated with formal cults physically centred on the sacred sites of Vrindavan is a later phenomenon, dating from the work of two Brahmins, almost exact contemporaries at the end of the fifteenth century. From the Bengali Chaitanya (1486–1533) stems the Gaudīya *sampradāy* particularly widespread in Bengal, while from the South Indian Vallabha (1479–1531) derives the *Pusti mārg* ('Path of Grace'), whose various branches soon became the chief organizing factors in the devotionalism of northern and western India. Typically rather conservative in social teachings, themselves amply expounded in Sanskrit treatises by the learned leadership of the sects, the communal life of this devotionalism was centred upon the temple with its images of Krishna, and the singing of vernacular hymns in his praise (*kīrtan*).

While *sagun bhakti* typically coexisted with, even gave fresh life to Hindu orthodoxy, this latter was openly challenged by the *nirgun bhakti* teachings expressed in the vernacular verses and hymns of the lower-caste, often illiterate, saint-poets collectively known as the Sants. While the links between them are often tenuous, and almost by definition they constitute no ordered school of thought, the Sants articulated through their often rough-hewn verses a popular message of salvation open to all. Expressly rejecting the claims of Brahmins, yogis or Muslim clerics to a monopoly of religious insights (whose falsity was tellingly demonstrated by continual observations of these specialists' marked failure to practise the most basic ethical principles), the Sants' powerfully monotheistic vision was of a God who might hope to be known by any believer, irrespective of social origins, not via the image of some *avatār* but through His immanent presence in the human soul, often conceived as the True Teacher (*satiguru*). It followed that only a loving meditation on the Divine Name (*nām*), supplemented by the singing of hymns in *kīrtan* (coupled, naturally, with leading a 'good life'), could offer salvation from the cycles of transmigration.

Scattered widely in place and time, the leading Sants naturally display their individual emphases in their expression of these core ideas. In the Marathi and Hindi hymns attributed to Nāmdev (d. *c.* 1350?), a cotton-printer from Maharashtra, there is a strong Vaishnava tinge. By contrast, the immensely popular and influential Hindi verses of the greatest of all the Sants, Kabīr of

Benares (d. *c.* 1450?), show a much greater affinity with *Nāth-yoga*. The futility of both Hinduism and Islam is also a central theme of Kabir, born into the Julāhā caste of weavers, one of those artisan groups converted *en masse* to Islam, who was consequently himself at least a nominal Muslim. Although also from Benares, the tanner Ravidās, apparently a younger contemporary of Kabīr from an even lower social background, devotes fewer of his verses to such social criticisms, preferring to hymn the beauties of mystical devotion.

Birth of the Sikh religion

Sectarian groupings, usually termed *panth* (path), came to be formed around several of the Sants, but their organization was much feebler than that of the typical Vaishnava *sampradāy*. The oral transmission of the Sants' hymns certainly guaranteed their wide circulation, but only at the price of much accretion and corruption. Our knowledge of the Sants is consequently in large measure due to the preservation of their hymns in the *Ādi granth* [First Book] (1604), the scripture of the Sikhs, who represent the one religious tradition connected with the Sants which developed sufficiently strong institutional structures to preserve its autonomy.

While the history of the formal organization of Sikhism largely lies outside the period under review here, the potential for its emergence was certainly inherent in the work of its founder and first Guru, Nānak (1469–1539). Born south-west of Lahore in Panjab, Nānak was the son of a village accountant. As a member of the Khattrī trading caste, Nānak's family status was considerably higher than that of the earlier Sants, and as a young man he was employed as the steward of a local Muslim landowner until induced to abandon his profession by an overwhelming mystical experience, from which he is said to have emerged uttering the famous phrase *nā ko hindū nā ko musalmān* ('There is no Hindu, and there is no Muslim'). The remainder of his life was spent first in a series of wanderings, then in a settled community in Panjab where he guided his Sikhs (Sanskrit *śishya*, 'disciple'), before entrusting their leadership to one of them, who succeeded him as the second of the ten Gurus of Sikhism.

Nānak himself proclaimed the source of his inspiration to be the inner divine *satiguru*, rather than any human teacher. While later Sikh tradition has naturally preferred to emphasize the uniqueness of Guru Nānak's message, most of its elements undeniably resemble those to be found in the verses of the earlier Sants. What distinguishes his thought from theirs is above all the clarity of its organization and the power of its expression, as recorded in his matchless Panjabi and Hindi hymns preserved in the *Ādi granth*. More than a simple matter of emphasis, this distinction is to be regarded as fundamental and qualitative. From the disciplined majesty of Nānak's *Japjī*, designed not for performance in *kīrtan* like most of his poetry but for daily private meditation, to

such simple formulations of doctrine as *nām dān isnān* (literally, 'the Name, giving, bathing'), the formula encapsulating the triple requirement on the believer to meditate upon God while living a life of charity and personal uprightness, Nānak's message provides a total programme for salvation in a fashion never achieved by such figures as Kabīr, for all the profundity of their insights. Taken in conjunction with his careful foundation in later life of a core community of followers, largely drawn from a similar middle-caste background to himself, Nānak's power to articulate an enduring message of wide subsequent appeal, at least in Panjab, is revealed by the fact that Sikhism, alone of all the mystic movements in the Hindu society of the period, continues (though much changed by later developments) vigorously to maintain its unique identity.

3

WORKS ON *HADĪTH* AND ITS CODIFICATION, ON EXEGESIS AND ON THEOLOGY

A. Paket-Chy and C. Gilliot

Part One

THE CONTRIBUTION OF EASTERN IRANIAN AND CENTRAL ASIAN SCHOLARS TO THE COMPILATION OF *HADĪTHS*

(A. Paket-Chy)

At the outset, one must observe that there is a lack of information about the initial efforts in the compilation of Islamic traditions, or *hadīth*, in the pre-ᶜAbbasid period. We do know, however, that in the last years of that period, al-Zuhrī complained about the *hadīths* of 'the eastern scholars'.[1]

Besides several traditional *tafsīrs* (Qur'anic commentaries), the effort of Husayn b. Wāqid of Merv (d. between 774 and 776) should be considered as one of the first compilations of *hadīth* in the East. The works of Ibrāhim b. Tahmān of Nishapur (d. 780), especially his *al-Sunan fi 'l-fiqh* [The Customary Procedures Concerning Legal Science], are also to be noted. However, a turning-point in the movement for the compilation of *hadīth* in Central Asia was the role of ᶜAbd Allāh b. Mubārak of Merv (d. 797), who was educated by Central Asian traditionists such as al-Rabīᶜ b. Anas, as well as by scholars from other regions. He compiled several *hadīth* works, in particular a *Musnad* (collection of *hadīths* organized on the basis of the first authority in the chain of guarantors above the Prophet), which made its author celebrated as the founder of such literature in Khurasan. Half a century later, Is'hāq b. Rāhūya (Rāhawayh) of Nishapur (d. 852), one of the most famous scholars of Central Asia, compiled a voluminous *Musnad* (still in manuscript); this was later accepted as one of the most important works of its kind.

1. For general references to this part, see Goldziher, 1888–9, Vol. 2; Guillaume, 1921; Sezgin, 1967; *EI*², 'Hadith' (J. Robson).

The age of 'the Six *Sahīhs*' (850–900)

The 50 years of compilation of the six recognized canons (*Sahīhs*) marks the peak of *hadīth* studies in Central Asia. The authors of these canons were not only concerned with their methods of compilation and the technical points of such studies, but also aimed to defend Islamic dogma and the religious beliefs of their society.

Among the various religious schools, that of the Hanafites was the most important and was an active rival to the school of the *as'hāb al-hadīth* (partisans of *hadīth*), the conservative traditionists. At the time when the former school was moving towards an integrated theological and legal system, the *as'hāb al-hadīth* of Central Asia were likewise compelled to compile comprehensive works on theology and law as accessible references for learned people. Because few were capable of rigorous *hadīth* criticism, it was indispensable to place in such comprehensive works solely those *hadīth*s confirmed as veracious, i.e. those considered *sahīh*, or 'sound'.

The Ibn Rāhūya mentioned above, leader of the traditionists of Central Asia in the first half of the ninth century and an opponent of the Hanafites and their imam, Abū Hanifa, propounded the idea of such a compilation, but it was his pupil, Muhammad b. Ismā^cīl al-Bukhārī (d. 810) who spent some 16 years on this and created the first *sahīh* collection of *hadīth*. The original title he selected for the work was *al-Jāmi^c al-musnad al-sahīh (al-mukhtasar) min umūr Rasūl-Allāh wa sunanih wa ayyāmih* [The Comprehensive, Sound, (Concise) Collection of Matters Concerning the Messenger of God, his Ways of Behaviour and his Military Campaigns], which captures the general scope of the author's methodology. He planned a comprehensive and concise reference work containing the selected *musnad* and *sahīh* traditions of the Prophet, but in fact, included only a minority of the *sahīh* traditions which he had heard during the years of his education. There is a wide range of opinions as to the exact determination of the *shurūt* (conditions; sing. *shart*) considered by al-Bukhārī and also by his follower Muslim for their acceptance of a *hadīth* as *sahīh* and for their placing it in their canons. In any case, the *hadīth*s that were introduced in both canons were always considered the most credible traditions in *hadīth* literature.

Although there had been several *hadīth* collections and law books in the Arab lands, such as the *Muwatta'* [The Clearly Trodden Way] of Mālik, the *Musannaf* (*hadīth* collection arranged in chapters) of ^cAbd al-Razzāq, the *Sunan* (a generic term for collections of authoritative traditions; lit. 'custom'; sing. *sunna*) of Sa^cīd b. Mansūr and the *Musannaf* of Ibn Abī Shayba, before the compilation of his canon, al-Bukhārī was the first author to devote his work entirely to *sahīh* traditions. Other features, such as the comprehensiveness of the work and its wide range of religious subjects, distinguish al-Bukhārī's work from those of his predecessors.

Concerning comprehensiveness of subjects, one may note that al-Bukhāri considers both legal and religious aspects in his canon. Hence he allocates several parts of the work to such subjects as theological problems and dogmatics; ethical questions and morals; stories about the previous prophets and the *Sīra* [Life of the Prophet]; exegesis; and even such general matters as medicine and the interpretation of dreams. His canon is not an abstract collection of prophetic traditions. At the beginning of every chapter the related verses of the Qur'an are given, and in the middle of chapters one can find the related opinions and *fatwā*s (legal opinions) of the Companions of the Prophet and their successors, and sometimes the opinions and explanations of the author. Regarding legal discussions, about which the prophetic traditions are very limited, al-Bukhārī tries to bridge the gap and lack of information by giving non-prophetic traditions and also by the indirectly related prophetic *hadīth*s. As to his sources, beside his dependence on the verbal relations of *hadīth* teachers, he profits directly or indirectly from previous *hadīth* compositions, such as Mālik's *Muwatta'* and the works of Ibn Mubārak, as well as early lexical and exegetic sources such as the *Majāz al-Qur'ān* [Figurative and Allegorical Interpretation of the Qur'an] of Abū ʿUbayda (d. *c.* 824).

Regarding the sectarian and polemical position of al-Bukhārī's canon versus divergent views, there is, on both the theological and the legal level, a particular attention to the opinions of the Hanafite school, as seen in the chapters dealing with a refutation of its theological teachings with regard to such problems as faith, free will and the attributes of God. On the subject of legal principles, al-Bukhārī opposes the use of *ra'y* (personal opinion or judgement) and *qiyās* (reasoning by analogy), allegedly employed by the Hanafites, and disapproves of the *hiyal* (legal fictions; sing. *hīla*) which the Hanafites were wont to apply.

The movement started by al-Bukhārī was followed by Abu 'l-Husayn Muslim b. al-Hajjāj al-Qushayrī of Nishapur (d. 875), who compiled a second *Sahīh*, which was somewhat better classified, and, regarding the validity of the *isnād*s (chains of authority supporting a *hadīth*), was considered the most reliable canon after that of al-Bukhārī. His work is characterized by the gathering of analogous *hadīth*s, solely in one particular passage, comparing the *isnād*s and *matn*s (the actual subject-matter of the *hadīth*), and by a notable accuracy in *isnād* distinctions. It should be pointed out, however, that, as regards the comprehensiveness of the subjects and its secondary information, Muslim's canon is placed lower than al-Bukhārī's.

In the last quarter of the ninth century, there arose a new compilation movement of four scholars of Central Asia (with the exception of one located at Qazvin) in following the *sahīh* literature, sc., the canons of Abū Dāwūd al-Sijistānī (d. 888), Abū ʿĪsā Muhammad al-Tirmidhī (d. 892), Abū ʿAbd al-Rahmān al-Nasā'ī (d. 915) and Ibn Māja al-Qazwīnī (d. 887). These scholars worked almost contemporaneously on canons which contain traditions other

than *sahīh* tradition, i.e. *hadīth*s at a lower level of technical validity, technically termed *hasan* (good). The four canons are known as 'the Four *Sunan*' and were celebrated alongside 'the Two *Sahīh*s', known by extension as 'the Six *Sahīh*s' (*al-Sihāh al-sitta*).

Among the Four *Sunan*, Abū Dāwūd's is accepted as the most trustworthy; al-Tirmidhī's as the most comprehensive in terms of the variety of subjects; al-Nasā'ī's as the most comprehensive regarding the *isnāds*; and Ibn Māja's as the best classified, in spite of the fact that it is the least authoritative and its place as the Sixth *Sahīh* not so certain as the others. The wide currency of the Two *Sahīh*s in Central Asia during the tenth century did not leave a great opportunity for circulation of the Four *Sunan*, but by the eleventh century they had attained a more important position than in the past.

In spite of the renown of the six canons, suggesting the concept of Six *Sahīh*s, it was Ibn al-Qaysarānī (d. 1113) who formally proposed its adoption, and in the following period it was accepted by most *hadīth* scholars. However, besides this concept, there were others, such as those of 'the Five *Sahīh*s' (excluding Ibn Māja's work); 'the Six *Sahīh*s', including Mālik's *Muwatta'* or the *Sunan* of al-Dārimi (of Samarkand, d. 869) instead; and 'the Seven *Sahīh*s', adding the *Muwatta'* or the *Sunan* of al-Dārimi next to the one of Ibn Māja.

In addition to the *sahīh* and *sunan* literature, there existed other kinds of *hadīth* studies in the same period. The most important are those on the topics of *ᶜilm al-rijāl* (study of the persons in the *isnāds*) and *ᶜilal al-hadīth* (causes, occasions of the traditions) considering the *isnāds*, and *gharīb al-hadīth* regarding the rare words in the texts. Among such works, the *rijāl* works compiled by the authors of the Six *Sahīh*s, the *ᶜIlal* of al-Tirmidhī and the *Gharīb al-hadīth* of Shamir b. Hamdūya of Herat (d. 869) are worthy of mention.

Subsequent *hadīth* literature

The history of *hadīth* literature in the eastern Islamic world after the age of the six canons may be divided into two periods, of which the first (*c.* 900–1200) was one of growth, with the creation of a large number of *hadīth* works, whereas in the subsequent one (*c.* 1200–1500), *hadīth* literature in Central Asia began to decline.

During the tenth century, *sahīh* literature continued in two forms, both dependent on the preceding *sahīh*s. In this period, one may note independent *sahīh*s, such as those of Ibn Khuzayma of Nishapur (d. 923) and Ibn Hibbān of Bust (d. 965), both considered as the most authoritative canons after 'the Six'. The next step was the compilation of supplements to the preceding canons, such as the *Mustadrak* of al-Hākim al-Naysābūrī Ibn al-Bayyiᶜ (d. 1014). In spite of the high validity of these works in *hadīth* literature, they were criticized by rigorist scholars because of the particular concepts of the authors

regarding the conditions of a *sahīh* tradition. In addition to the above-mentioned independent or supplemental *sahīhs*, there existed a special method of *sahīh* compilation known as *mustakhraj*, in which the author presents a new version of the preceding canon but inserts his own *isnāds* instead of those of the original. Among famous examples of the *mustakhrajs* on al-Bukhārī's *Sahīh*, the works of Abū Bakr al-Ismāʿīlī (d. 981) and al-Ghitrīfī (d. 987), both of Gurgan, should be mentioned. Also notable are the *mustakhraj* on Muslim's *Sahīh* by Abū ʿAwāna al-Isfarāyinī (d. 928), and that of Abū Dharr al-Harawī (d. 1043) on the Two *Sahīhs*.

The other aspect of *sahīh* literature of this age was the compilation of the *hadīths* of the Two *Sahīhs* into one collection. In these works, called *al-Jamʿ bayn al-Sahīhayn* [The Bringing Together and Comparing of the Two *Sahīhs*], the author undertook to compare the *isnāds* of the Two *Sahīhs* and register the repeated *isnāds* all together. The pioneer of this kind of *hadīth* compilation was the scholar of Nishapur, Abū Bakr al-Jawzaqī (d. 998), whose method was followed by several authors, such as Ibn al-Furāt al-Sarakhsī (d. 1023) and Abū Bakr al-Barqānī (d. 1034).

As to the *sunans* compiled at the time, the *al-Sunan al-kubrā* [The Great *Sunan*] of Abū Bakr al-Bayhaqī (d. 1066) is a major reference for the *hadīths* and sometimes a useful source for the opinions of Companions and Successors, all by *isnāds*. In particular, it is a traditional text for the Shafiʿite law school.

The classic *musnad* literature was continued during this period; several important texts include the *musnads* of Hasan b. Sufyān of Nasa (d. 915) and Haytham b. Kulayb of Chach (present-day Tashkent) (d. 946). A new phenomenon in the *musnad* literature of Central Asia at this time was the compilation of numerous *musnads* for Abū Hanifa, the imam of the Hanafites, appearing in the first half of the tenth century; these included the *Musnad Abī Hanīfa*, the most famous one over the ensuing centuries, compiled by al-Hārithī of Bukhara (d. 951), and those compiled by Ibn ʿAdī of Gurgan (d. 976) and Ibn Khusraw of Balkh (d. 1126). It seems that there was a certain disappearance of theological differences between the Hanafites and other groups called by the general title *ahl al-sunna wa 'l-jamāʿa* (Proponents of the *Sunna* and the Muslim Community) contemporaneously with the beginning of the Ghaznavid dynasty; but above all, the Hanafites now began to gain ground over the Shafiʿites and others and become the dominant law school in eastern Persia and Central Asia. Nevertheless, in the first half of the tenth century, a Shafiʿite scholar of Nishapur, Abu 'l-ʿAbbās al-Asamm (d. 957), embarked on collecting the *musnad* traditions employed by al-Shāfiʿī from the latter's works and compiled them into a volume known afterwards as the unique *Musnad* of al-Shāfiʿī. Besides the *sahīhs*, *sunan* and *musnads*, there were some important works on *gharīb al-hadīth*, such as the *Gharīb al-hadīth* of al-Khattābī of Bust (d. 998), *al-Gharībayn* [The Two Works on the Rare Words in the Qur'an] by Abū ʿUbayd of Herat (d. 1011) and *al-Fā'iq* [The Excellent, Outstanding Work] by

al-Zamakhsharī of Khwarazm (d. 1143). In the field of commentaries, al-Khattābī appears again as the first compiler of two commentaries on al-Bukhārī's and Abū Dāwūd's canons for the first time; it was one and a half centuries before al-Fārisī of Nishapur (d. 1135) began writing a commentary on Muslim's canon.

During the twelfth century, the attraction of *hadīth* schools in Khurasan was still able to draw *hadīth* seekers from other regions of the Muslim world; but in the more westerly lands of eastern Persia, including Gurgan and Rayy, the *hadīth* schools began to decline from the middle of the tenth century onwards.

In the first years of the thirteenth century we still find a *hadīth* book, the *Mu*ʿ*jam al-shuyūkh* [Encyclopedic Work on Leading Scholars], compiled in Khurasan, in 18 parts (*juz*'s), by Abu 'l-Muzaffar al-Samʿānī (d. 1218); but soon afterwards, in 1220, the Mongols of Chinggis Khan appeared in Central Asia and eastern Persia, leaving a trail of devastation in the towns there. Although many of these towns revived, Islamic culture and scholarship there suffered severe setbacks. *Hadīth* studies were among those affected by these events; but there was a counter-balance to this in a greatly increased interest in Sufism and mystical compositions in both Persian and Arabic.

In any case, works emanating from Central Asia during this later period were very limited in number, and in regard to quality, the *hadīth* literature of the region was not able to compete with that of the western Islamic lands. Two samples of the *jam*ʿ ('collection') literature may, however, be mentioned. The first is a combination of 15 compendiums, a work of Muhammad b. Mahmūd al-Khwārazmī (d. 1247): entitled the *Jāmi*ʿ *masānid Abī Hanīfa* [Collected Work of the *Musnads* of Abū Hanīfa], it is considered the most comprehensive reference on the subject. The second is the *Mashāriq al-anwār al-nabawiyya* [Places of the Gleams from the Prophetic Lights] of Hasan b. Muhammad al-Saghānī (d. 1252), a scholar who was born in Lahore, educated in Ghazna and spent the last part of his life in Baghdad. The author, who was a Hanafite jurisconsult and traditionist as well as a lexicographer, proposed a new form of combination between the Two *Sahīh*s regarding the classification of the subjects in the *Mashāriq*, and for this it met with great success as far away as Anatolia.

The literature of commentaries on the *sahīh*s, while limited in the early periods, flourished extensively between the thirteenth and the fifteenth century. They included the commentaries on al-Bukhārī's canon by Muhammad b. Yūsuf al-Kirmānī (d. 1384) and his son Yahyā al-Kirmānī (d. 1430), a commentary on Muslim's canon by Shams al-Dīn al-Rāzī (d. 1366) and also a summary of Abū Dāwūd's canon by Muhammad b. Hasan of Balkh (thirteenth century).

As for *hadīth* compilation among the Imami Shiʿites in Central Asia, the summit of achievement was the period of compiling 'the Four Books' (*c.* 900–1050): *al-Kāfī* [The Sufficient (Book)] by Muhammad b. Yaʿqūb al-Kulaynī of

Rayy (d. 940–1); *Man lā yahduruhu 'l-faqīh* [He Who Has No Legal Expert (to Consult)] by Ibn Bābuya (Bābawayh) of Qum (d. 991); and two works entitled *Tahdhīb al-ahkām* [The Refining of the Bases of Law] and *al-Istibsār* [The Far-Sighted (Book)] by Muhammad b. Hasan al-Tūsī (d. 1068), who spent the last part of his life in Iraq. Of the Four Books, the *Kāfī* (which covers theological, ethical and other religious instructions as well as legal matters) is regarded as the most authoritative and comprehensive by the Shiᶜites. Ibn Bābuya's work was compiled as a jurisprudential handbook; the *Tahdhīb* is considered the most comprehensive regarding the variety of *isnāds* and texts of traditions, although it is primarily concerned with law; and, finally, the *Istibsār* is a reference work for contradictory legal traditions.

In addition to the Four Books, there were many other works on a wide range of subjects compiled by the Imami traditionists of Central Asia. Some examples are the works of Ahmad al-Barqī of Qum (d. 887 or 893) and Muhammad b. Masᶜūd al-ᶜAyyāshī of Samarkand (ninth century), and the numerous works of Ibn Bābuya, beside his main work mentioned above. During the twelfth century, there were still some *musnad* collections of Imami *hadīths*, such as the *Arbaᶜūn* [Forty (Traditions)] of Muntajab al-Dīn of Rayy; but the changed political and social conditions, and the decline of political Shiᶜism during the following century, caused the *hadīth* literature of the Imamis to decline within the region of Central Asia.

Part Two

Qur'anic exegesis

(C. Gilliot)

Introduction and origins

The mobility of scholars throughout the period known as Islam's 'Classical Age' makes it rather difficult to present this discipline according to strictly regional criteria. Moreover, the very notion of a 'Central Asia' remains vague. Hence the choices we have had to make here may appear, in many cases, somewhat arbitrary; thus Qur'anic commentators who belonged to Iran proper have been excluded. We have, however, given pride of place to scholars from Khurasan, since their region constituted a major meeting-ground for intellectual exchange between Central Asia proper and the Near East. Yet even here, the number of Qur'anic commentators was so great, including both the better-known scholars and the more obscure, that we have had to restrict our survey to only a very few. This has meant neglecting such intellectual centres as Merv

and Rayy, under-represented in this study even though they too enjoyed considerable influence in Central Asia.

Together with Merv, Balkh was the most important urban centre during the initial centuries of Muslim sway in Transoxania. The Companions of the Prophet left little trace here, however, for only in the years after 699, with the commander Qutayba b. Muslim, did Muslim government become firmly established. Just as in Syria, interest here in things religious developed among circles of *muqātila* (warriors),[2] as attested by the very name borne by two well-known Qur'anic commentators from this region, both called Muqātil.[3]

AL-DAHHĀK B. MUZĀHIM

One of the first Qur'anic commentators mentioned for this region was al-Dahhāk b. Muzāhim al-Hilālī,[4] who died at Balkh *c.* 723. The various guaranteed 'chains of transmission' (*isnāds*) concerning his exegesis go back to the Prophet's Companion Ibn ᶜAbbās, although al-Dahhāk probably never met him personally. He seems instead to have studied exegesis in Rayy with one of Ibn Abbās' disciples, thereby coming into contact with part of the Basran tradition in Qur'anic exegesis. Al-Dahhāk's own Qur'anic interpretations are preserved in later recensions. He is described as imparting his teachings to as many as 3,000 young men and we may suppose that he expounded the text of the Qur'an and delivered moral lessons to the warriors of Transoxania. Some of his exegetic traditions, one of which notably draws upon a Midrash dealing with the creation of Adam, show him to have been a narrator of the old-fashioned type, one who moreover borrowed from the Persian legendary lore circulating in this area. As with many of the older commentators, and notably with Ibn ᶜAbbās himself,[5] however, it might be going somewhat too far to attribute to al-Dahhāk an actual body of Qur'anic exegesis in the strict sense of the term. Instead, he should be regarded as one who imparted oral teachings on various passages of the Qur'an, and this, later, came to be considered as a *tafsīr*.

MUQĀTIL B. HAYYĀN[6]

This commentator from Balkh (d. 753) may have been the son of an Iranian military slave who managed to rise in the world, since his father saw service

2. Van Ess, 1991–7, *TG* II, p. 508.
3. For the beginnings of the exegesis, see Gilliot, 1990*b*, pp. 81–100.
4. Sezgin, 1967, pp. 29–30; Gilliot, 1982, pp. 168–79; Van Ess, 1975, pp. 113–14; 1991–7, *TG* II, pp. 508–9.
5. Gilliot, 1985, pp. 127–84.
6. Van Ess, 1991–7, *TG* II, pp. 510–16; his hypothesis has been recently challenged, however, by Crone, 1997, pp. 238–49.

with, among others, the commander Yazid b. al-Muhallab and then rose to become, for a spell, the governor and even the judge of Samarkand. Muqātil b. Hayyān also spent some time in Tabaristan, in the service of the last Umayyad governor of Khurasan, Nasr b. Sayyār, but in the end, he had to flee from Abū Muslim; hence he went to Kabul, where he carried out missionary activities until his death in eastern Afghanistan.

Muqātil b. Hayyān did not compose a complete commentary on the Qur'an, but rather proceeded as a *qāss* (preacher) of *qisas* (sermons or narratives; sing. *qissa*), one imparting exegetic interpretation within the framework of edifying lessons, so that he appears more in the light of a popular storyteller than in that of a jurist. Interpretations of a Midrashic type were notably to be found in his sermons, and such exegesis later found only rather lukewarm appreciation among adherents of the Iraqi rational school. One of his interpretations, which he attributed to the Prophet himself, thus represented the sun as a body borne each evening up to the seventh heaven where it would come to a stop beneath the Throne, with God then deciding each dawn whether it should rise in the east or in the west. Such interpretations of his are quoted by al-Tabarī and also by Abu 'l-Futūh al-Rāzī (d. in or after 1131).

Muqātil b. Sulaymān[7]

Abu 'l-Hasan Muqātil b. Sulaymān al-Balkhī was born in Balkh, where his father served as judge. He seems to have died in 767 (or perhaps as late as 775). He probably left his native town through incurring the disfavour of the governor Nasr b. Sayyār. After being caught up in the civil warfare, he later seems to have taught in Mecca, Damascus and Beirut, and dwelt for a spell in Baghdad and then in Basra, where he died. Both Muqātils shared, in fact, the experience of being *ghāzīs* (warriors for the faith). Three of Muqātil b. Sulaymān's works of Qur'anic commentary have come down to us and have been published. These are the *Tafsīr Khams-mi'at āya* [Commentary on Five Hundred Verses], the *Kitāb Wujūh al-Qur'ān* [Book of the Purports of the Qur'an], a kind of rudimentary concordance, and a *Tafsīr* (or Qur'anic 'Commentary' proper).

Most Muslim jurists and traditionists later branded this Muqātil with the reputation of having been a poor transmitter of *hadīths*, although they all always qualify him as a 'great Qur'anic commentator'. So far as his qualifications for transmitting *hadīths* were concerned, however, Muqātil was hardly an isolated case in his day; one need only mention in this regard Ibn Is'hāq (d. 767), the author of the celebrated *Sīra* [Life of the Prophet]. For in Muqātil's age, not only did the *hadīths* not yet enjoy the pride of place which they came

7. Van Ess, 1991–7, *TG* II, pp. 516–32; Gilliot, 1991, pp. 39–92; Goldfeld, 1978, pp. xiii–xxx.

to command some 50 to 100 years later; the whole system of *isnāds* had not yet been codified at all. Thus the criticisms levelled at Muqātil actually betray a discernible historical trend towards backward projection, whereby ancient scholars came to be judged according to standards which only found widespread acceptance at a much later date.

Writers on heresy and theology have also depicted Muqātil as one given to anthropomorphism and it is true that his recently published commentaries do show traces of such tendencies,[8] although not the extreme positions once ascribed to him. The problem here is that his work has been transmitted through two recensions, a Baghdadi and an 'Iranian' one,[9] only the first of which has actually come down to us; it is possible that later redactors of his text suppressed propositions which appeared shocking to them.

But Muqātil's commentary poses yet another problem, in so far as whatever has been authentically preserved of his material soon came to be mingled, in this eastern part of the Muslim world, with elements of the Kufan tradition represented by the commentator Muhammad b. al-Sā'ib al-Kalbī (d. 763), who partly drew in turn on interpretations offered by Ibn ʿAbbās. Finally, the Baghdad version – as published – includes interpolations probably due to one of the transmitters of this material, al-Tawwāzī (d. 920), himself a grammarian and a specialist in Qur'anic readings.

With these qualifications duly in mind, this version of Qur'anic commentary does hold interest as an example of exegesis belonging to an early period. It mainly proceeds by way of paraphrase and narrative, with very little resort to *hadīth* – drawing, instead, on what would later come to be known as *Isrā'īliyyāt* ('Tales from the Jews') and, generally, on the legendary lore of this whole part of the world, of which echoes were already to be found in the Qur'an, and which was now adapted to the purposes of the new faith.

Muqātil belonged to an intellectual environment of scholars in the religious sciences who did not yet observe the rules later laid down to distinguish the 'sound' from the 'unsound'. Moreover, while he takes linguistic matters into consideration, he never quotes a single grammarian and almost never any philologist, and with good reason: the great grammarians had not yet appeared on the scene. Later generations, however, would buttress the soundness of their interpretations and traditions by resort to grammar and philology, thereby providing what they regarded as a positive basis for critical discernment, even though such knowledge had been gleaned, and in some cases even fabricated, in light of the Qur'an, the *hadīth* and the interpretations.[10] Since, moreover, a number of theological points had not yet been entirely fixed in this age, some

8. Gilliot, 1991, pp. 54–68; Van Ess, 1991–7, *TG* II, pp. 529, 550, 723–4.
9. Van Ess, 1991–7, *TG* II, pp. 519–23; Gilliot, 1991, pp. 40–6.
10. Gilliot, 1990*a*, pp. 165–203.

representations can also be distinguished in Muqātil's writings which would shock later upholders of orthodoxy, especially in regard to notions which came to prevail such as the 'sinlessness of the Prophets'.

Muqātil's commentary thus encountered a rather mixed reception. Al-Tabarī never quotes him, possibly because of the lack in Muqātil's work of *isnāds*, although Muqātil is often cited by such writers as al-Tabrīzī (d. 1153), Fakhr al-Dīn al-Rāzī (1148–1209)[11] and al-Qurtubī (d. 1272) in their own works of exegesis.

Corpora of exegesis based on *hadīth*

THE SUNNIS

ᶜAbd b. Humayd (or Hamīd)

This commentator and scholar (d. 863) of *hadīth* was born in Kish in what is now Uzbekistan and is the author of a major collection of *hadīths*. While his commentary on the Qur'an has not come down to us as such, it is found abundantly quoted by a later writer like al-Suyūtī (d. 1505); hence all hope is not lost of one day discovering a manuscript of ᶜAbd b. Humayd's own complete work.[12]

Al-Tabarī

While Abū Jaᶜfar Muhammad b. Jarīr b. Yazīd al-Tabarī does not strictly belong to the region with which we are concerned – he was born at Amul near the Caspian Sea – this major commentator must nevertheless be presented here, given his importance for all later exegesis based upon *hadīth*. Once he had completed his initial training in his own native region, notably in such fields as *hadīth*, historiography and the Qur'anic and judicial disciplines, al-Tabarī went off 'to search for knowledge' in the wandering manner usual among the literati of his age, staying in Rayy, Baghdad, Basra, Kufa, Egypt, Mecca and several Syrian towns, where he followed the lectures of a most impressive number of masters: as attested by the *isnāds* offered in his own commentary on the Qur'an, in his *History* and in other works.[13] He then settled in Baghdad, where he died in 923.

It seems that al-Tabarī was a conscious competitor of other scholars in three fields of knowledge, and he wanted to do better than at least three of his predecessors. In law, he appears to have wanted to outdo al-Shāfiᶜī, not only

11. Lagarde, 1996, p. 162.
12. Sezgin, 1967, p. 113.
13. Gilliot, 1994*b*, pp. 309–51.

because he tried to establish his own *madh'hab* (legal school), the Jarīriyya. In *hadīth*, he probably wished to compete with Ibn Hanbal and Abū ʿUbayd al-Qāsim b. Sallām (d. 838). In historiography, it is likely that he wished to continue and do better than Ibn Is'hāq for the pre-prophetic and prophetic periods (see further on his work here, below, Chapter 4, Part One).[14]

The title of al-Tabarī's commentary on the Qur'an is *Jāmiʿ al-bayān ʿan ta'wīl āy al-Qur'ān* [The Sum of Clarification Concerning the Interpretation of the Verses of the Qur'an].[15] This work represents the ultimate accomplishment in Qur'anic exegesis on *hadīth*: from the author's own lifetime down to the present day, it has been regarded as the model of its kind, in both the Islamic East and the Islamic West. A main characteristic of the work is the care lavished by al-Tabarī on ensuring the appearance of complete chains of guaranteed transmission: 13,026 different *isnād*s are thus offered in some 35,400 cases.[16] In this regard, the work yields a precious mine of information concerning earlier sources for exegesis.

Because of the many stories related by al-Tabarī in the form of *hadīth*s, he has often been regarded as essentially something of a compiler. Irritation has even been felt in some quarters on account of his transmission of numerous 'legendary' traditions, or *Isrā'īliyyāt*.[17] Nearly all commentaries on the Qur'an, however, and even the canonical *al-Kutub al-Sitta* [Six Books] of Sunnism, contain these. Moreover, while al-Tabarī assuredly also played the part of a compiler, to reduce him to such a role would be to overlook the task he set himself, consisting in no less than sifting all the data he transmitted according to the criteria of the Sunni orthodoxy of his own day and environment. Indeed, al-Tabarī often adopted an outright theological stand, notably against the Muʿtazilites. In addition, there are places in his commentary where he actually speaks out in the tones of a speculative theologian (*mutakallim*),[18] something which can hardly have been acceptable to partisans of the Hanbalite trend in theology, who in Baghdad occasionally made life difficult for al-Tabarī, even going so far as to accuse him of harbouring Shiʿite tendencies.

Al-Tabarī's commentary also came to amount to something of a legal *summa*,[19] and not only for the followers of his own *madh'hab*, that is, the adherents of al-Shāfiʿī's school, but also for members of the Hanafite and Malikite schools. Much like other scholars of his day, al-Tabarī tended to regard the master Ibn Hanbal less as a jurist than as a *muhaddith* (traditionist). Indeed,

14. Gilliot, paper delivered at the conference, 'The Life and Works of Muhammad Ibn Jarir al-Tabari', University of St Andrews, 30 August–2 September 1995 (to be published).
15. Gilliot, 1987, pp. 366–70.
16. Horst, 1953, p. 291.
17. Gilliot, 1993*b*, pp. 277–89; 1994*a*, pp. 237–70.
18. Gilliot, 1990*a*, Ch. VII.
19. Gilliot, 1993*a*, pp. 41–94.

al-Tabarī had first come to Baghdad to hear Ibn Hanbal's lessons on *hadīth*, although he reached the capital just after Ibn Hanbal's death in 855. In conclusion, al-Tabarī's commentary has continued to be regarded by succeeding generations, down to the present day, as one of the key sources for exegesis in Islam.

Abū Bakr al-Qaffāl al-Shāshī[20]

An interesting case regarding theology and law is offered by this scholar (d. 976), who was born and died at Chach in Central Asia. He travelled as far as Egypt for his studies, and his masters in exegesis included, for a time, al-Tabarī. After agreeing for a while with the Muᶜtazilite trend, he adhered to Ashᶜarite doctrine, and is regarded as having introduced the school of al-Shāfiᶜī to Transoxania, where hitherto Abū Hanīfa's school had prevailed. He dwelt for a spell in Bukhara and Nishapur and composed a 'Major Commentary' on the Qur'an (*al-Tafsīr al-Kabīr*) which now appears to be lost, although once drawn upon by later writers.

Abu 'l-Layth al-Samarqandī

A Hanafite jurist, a theologian and a Qur'anic commentator, Abu 'l Layth al-Samarqandī (d. 983) was also known by such titles as al-Faqīh (The Judge) and Imām al-Hudā (Imam of Guidance). He should not be confused with Abu 'l-Layth Nasr al-Samarqandī, whose title was al-Hāfiz (He who Knows the Qur'an by Heart). According to Van Ess, 'Like his teachers, he combined solid juridical knowledge with a predilection for propagating popular morality in terms of asceticism: in Transoxania a jurist almost inevitably had to deal with proselytizing among the Turkish tribes.'[21] Abu 'l-Layth's Qur'anic commentary, entitled *Bahr al-ᶜulūm* [The Ocean of Sciences], is of only average size and belongs to the genre of exegesis which relied on *hadīth*.

The school of Khurasan, especially in Nishapur

As noted at the outset, Khurasan, and especially the city of Nishapur, was a major seed-bed for commentators on the Qur'an, hence special mention should be made here of this region.

Mīrak al-Rawwās al-Balkhī

This Qur'anic commentator appears to have been a staunch upholder of the *sunna* and an opponent of the Muᶜtazilites, who were at that time numerous in his native city of Balkh. If our current identification is correct, then this Mīrak

20. Not to be confused with Sayf al-Dīn Abū Bakr al-Qaffāl al-Shāshī Muhammad b. Ahmad al-Fāriqī (d. 1113), author of the *Hilyat al-ᶜulamā'* (Brockelmann, 1937–49, Suppl., Vol. 1, p. 674).
21. Van Ess, 1985, p. 333.

also seems to have been a Hanafite and the author of an *iʿtiqād* (exposition of belief) wherein he expounds upon Sunni doctrine; but his *Major Commentary* has apparently left no trace in later exegesis.

Ibn Habīb al-Naysābūrī

This scholar (d. 1016) was a Karramite (see p. 107 below on the Karramites) before adhering to Shafiʿism. He composed a commentary on the Qur'an which was once appreciated and famous but is now lost. One of his most enthusiastic disciples, however, was the commentator Abū Is'hāq al-Thaʿlabī, who received permission to transmit the master's commentary and who mentions it among the sources for his own exegesis.

Abū Is'hāq al-Thaʿlabī

Al-Thaʿlabi (d. 1035) is the author of the celebrated *Qisas al-anbiyā'* [Tales of the Prophets], but we know little about his life. He was a specialist in readings of the Qur'an, a traditionist, a commentator and a man of letters. He studied with a large number of masters and transmitted many *hadīths*. But Ibn al-Jawzī, while recognizing the importance of his commentary, and Ibn Taymiyya also, fault him for integrating too many *hadīths* which they consider unsound.

Except for the introduction, al-Thaʿlabī's commentary on the Qur'an, entitled *al-Kashf al-bayān ʿan tafsīr al-Qur'ān* [Unveiling and Elucidation in Qur'an Exegesis], is so far unpublished.[22] Such a regrettable gap is not altogether due to chance, however. For one thing, this is a very lengthy commentary, and the (mistaken) opinion has prevailed that the essence of Qur'anic exegesis embodied according to *hadīth* could already be found in the great work by al-Tabarī. For another, al-Thaʿlabī does not hesitate to draw upon the exegesis of men like al-Kalbī and Muqātil b. Sulaymān, two commentators regarded with suspicion by the orthodox both in former times and especially in our own day.

Even the printed introduction to al-Thaʿlabī's commentary is of major importance, however, since he includes therein the names of various commentators and also information on the various lines through which their material was transmitted. In many cases, al-Thaʿlabī bears better witness than al-Tabarī to the state of Qur'anic exegesis in the eastern reaches of the Islamic world, and especially in Khurasan.

Abū ʿAbd al-Rahmān al-Hīrī al-Naysābūrī

This scholar (d. 1038) was born in al-Hira, a suburb of Nishapur; he stayed for a while in Baghdad in 1032 while on pilgrimage to Mecca, but soon returned to Nishapur. A traditionist, al-Hīrī was also a commentator and a specialist in Qur'anic studies, writing a book entitled *al-Kifāya fī 'l-tafsīr* [The Exhaustive Commentary]. Although this is a commentary based on *hadīth*, it does not

22. Goldfeld, 1984; Gilliot, 1988, pp. 157–61; Schoeler, 1990, pp. 19–21, no. 17.

offer whole *isnāds*, but only mentions the initial link in each chain. Even here, al-Hīrī's work is far less well documented than al-Tabarī's. For the rest, the usual materials making up Qur'anic commentary are to be found in these writings: grammar, variant readings, and narratives which here are usually abridged. On juridical subjects, while al-Hīrī mentions the opinions of both the Hanafites and the Shafi^cites, he himself openly endorses those of the Shafi^cite school to which he himself belonged.

Abū ^cUthmān al-Sābūnī (d. 1057)

Al-Sābūnī's commentary is far more grounded in the 'sound' transmission of 'orthodox' exegetic *hadīth*,[23] at least if one is to believe the praise bestowed upon this traditionist and commentator by the *as'hāb al-hadīth*.

Abu 'l-Hasan al-Wāhidī

This scholar of Nishapur (d. 1076) was one of the most noted disciples of both al-Tha^clabī and al-Sābūnī. He found fame not only for his commentaries on the collected works of several great poets, but also for his exegesis of the Qur'an, being the author of no fewer than three Qur'anic commentaries entitled respectively 'Extended', 'Abbreviated' and 'Medium-sized'. He also wrote a *Kitāb Asbāb al-nuzūl* [Book on the Occasions and Causes of Revelation], on the revealing of the chapters and verses of the Qur'an.

^cAlī b. Sahl al-Naysābūrī al-Shāfi^cī

Al-Shāfi^cī (d. 1098) lectured in various schools, notably in the Nizāmiyya *madrasa* of Nishapur (see above, Chapter 1, Part One, p. 37), but the commentary he composed has been lost.

Nizām al-Dīn al-Naysābūrī al-A^craj

This scholar (d. after 1329) was the last of the commentators of Nishapur to be dealt with here. He originally hailed from Qum, but eventually removed to Dawlatabad in central India. He enjoyed a grammatical turn of mind and was generally regarded as a 'sage', that is, one attuned to philosophy and logic and also to mathematics and astronomy. He displays considerable veneration for the family of the Prophet, but makes no concessions to Imami Shi^cite teachings, and so shows himself to have been a Sunni.

One of al-A^craj's masters in the exact sciences was the astronomer Qutb al-Dīn al-Shīrāzī and it was apparently at his insistence that al-A^craj composed his commentary, entitled *Gharā'ib al-Qur'ān wa-raghā'ib al-Furqān* [Wonders of the Qur'an and Things to be Desired in the Revelation],[24] a task which took him some five years. The end result is a well-planned book with the author proceeding along exactly the same lines, in four stages, for each verse, portion

23. Bulliet, 1972, pp. 134–8.

24. Monnot, 1981, pp. 369–73; 1982, pp. 273–8; 1983, pp. 317–18; 1990, pp. 280–2.

of a verse, or group of verses: (a) variant readings (*qirā'āt*); (b) pauses (*wuqūf*), which were also the subject of his eighth introduction; (c) literal exegesis (*tafsīr*); here al-Aʿraj mainly borrowed from Fakhr al-Dīn al-Rāzī and al-Zamakhsharī; and (d) spiritual exegesis (*ta'wīl*).

Al-Baghawī

As a traditionist and commentator, al-Baghawī[25] (d. 1122 or perhaps 1116) composed a medium-sized exegesis of the Qur'an, entitled the *Maʿālim al-tanzīl* [The Salient Marks of Revelation]. It relies on *hadīth*, but the author's *isnāds* are abridged. Criticism levelled against al-Baghawī notably faults him for drawing to far too great an extent on biblical, and extra-biblical, legendary lore, though such usage was standard. Also held against him were his frequent quotations from the exegeses of al-Kalbī,[26] regardless of the fact that *hadīths* of similar or identical content were abundantly to be found in the commentaries of al-Tabarī and others. In this connection, it should be borne in mind that the commentaries by al-Kalbī, although a Shiʿite, were also appreciated in non-Shiʿite circles, notably among the Karramites, and were later considered, especially in Khurasan, as the 'sound' or authentic form in which the exegetic *hadīths* of Ibn ʿAbbās were to be found.[27]

Al-Baghawī drew for the greater part of his materials on the commentary by Abū Is'hāq al-Thaʿlabī. As a result, one might regard al-Baghawī's commentary as a sort of abbreviation of al-Thaʿlabī's work – with those *hadīths* considered unacceptable by a strict traditionist like al-Baghawī duly expurgated. Indeed, this was probably the main reason for the praise heaped in some circles on al-Baghawī's work.

Abu 'l-Barakāt al-Nasafī

This scholar, who was also a jurist, a Hanafite theologian and a Qur'anic commentator,[28] was born in Nakhshab or Nasaf, some four days' journey from Bukhara. Al-Nasafī later taught in Kirman, went to Baghdad in 1310 and probably died on his return from this journey. His commentary bears the title *Madārik al-tanzīl wa haqā'iq al-ta'wīl* [The Perceptions of Revelation and the Truths of Interpretation]. The author himself intended it to be of only medium size, but in fact, it amounts to a compendium of exegesis that might satisfy the most orthodox of Sunnis.

So far as the Qur'an's *variae lectiones* are concerned, al-Nasafī restricts himself to the Seven *Sahīhs* (recognized readings), although he devotes special attention to any legal problems which may arise. In part, his commentary may be considered a kind of shortened version of those by al-Baydāwī and

25. From Bagh or Baghshur, a place in eastern Khurasan between Merv and Herat.
26. Sezgin, 1967, p. 34; Van Ess, 1991–7, *TG* I, pp. 298–301.
27. Van Ess, 1991–7, *TG* I, p. 299.
28. See Brockelmann, 1937–49, Vol. 2, pp. 196–7; Suppl., Vol. 2, pp. 263–8.

al-Zamakhsharī, though he obviously refrains from repeating al-Zamakhsharī's Muᶜtazilite positions.

Where al-Nasafī briefly refers to biblical and extra-biblical lore, which is so abundant and developed in Muslim exegetic literature, he generally avoids taking any position at all. But on occasion he can react very strongly indeed. Thus, on Qur'an 38:21ff, he states: 'It is told that David sent forth Uriah, time and again, for to do battle against the Ammonites, in hope that Uriah might thereby be slain and that he might so wed his wife. Now such would not be fitting for simple Muslims, upon whom it is enjoined that they do good: how much less then for great Prophets!' At stake here for al-Nasafī, it will be readily understood, was his belief in the 'sinlessness of the Prophets'. But such tales had not disturbed Muqātil b. Sulaymān in the least, in an earlier age when such a belief had not yet taken firm hold.[29]

THE KARRAMITES

Abu 'l-Hasan al-Haysam b. Muhammad

Through his mother's line, al-Haysam[30] (d. 1075) was descended from a whole family of Karramite scholars in Nishapur. He notably taught exegesis and *hadīth* in Nishapur and was also recognized as a master in matters of rhetoric, poetry, literature and philology. The only text preserved from his grandfather Muhammad b. al-Haysam's circle exists in two manuscripts[31] containing 'Tales' of the Qur'anic Prophets (*Qisas al-Qur'ān*); J. Van Ess has pointed out the Karramite traits in this text (to be published).

Abū Bahr ᶜAtīq b. Muhammad al-Sūrābādī (d. 1101)

Although al-Sūrābādī's commentary has survived, we know very little about its author. Yet in his own time, he was the leading figure among the Karramites of Nishapur and is described as an ascetic who fasted by day and prayed by night. A partial edition of his work has been published, mainly pertaining to his recounting of the 'Tales of the Prophets'. The work is an important commentary in the classical sense, although (to a lesser extent) it also includes theological considerations.[32]

29. Gilliot, 1991, pp. 70–6.
30. Van Ess, 1980, pp. 68–73.
31. Van Ess, 1980; Schoeler, 1990, pp. 19–34; Brockelmann, 1937–49, Suppl., Vol. 1, pp. 529–3.
32. Van Ess, 1980, pp. 73–4.

THE SHIᶜITES

Pre-Buyid exegesis

Al-ᶜAyyāshī

Abu 'l-Nadr Muhammad b. Masᶜūd al-ᶜAyyāshī al-Sulamī al-Samarqandī (d. *c.* 932) was one of the pre-eminent Shiᶜite scholars of his day, to the point where Ibn al-Nadīm could refer to 'his books being a matter of importance in the regions of Khurasan'. Originally a Sunni, he converted to Shiᶜism and had studied in such leading Shiᶜite centres of the day as Kufa, Baghdad and Qum.

What survives of al-ᶜAyyāshī's commentary only extends as far as the end of sura 18, 'The Cave', but it certainly contained much more material than what we have now, as clearly appears from the quotations of later scholars. By the eighteenth century, however, such Imami Shiᶜite scholars as al-Majlisī and al-Hurr al-ᶜĀmilī were no longer familiar with the complete text of al-ᶜAyyāshī's exegesis.

In his introduction, al-ᶜAyyāshī stresses *hadīths* concerning the sole prerogative of the Shiᶜite imams to expound Scripture. Elsewhere, he avoids introducing his own views explicitly, but rather reports pertinent *hadīth*s from the imams and the Shiᶜite scholars of the past. In this regard, his exegesis bears the stamp of Shiᶜite literature in the age before the rise of the Buyids, a period when Shiᶜite commentators did not feel entitled to emit opinions or judgements of their own without support from *hadīth*s going back to the imams or other recognized Shiᶜite scholars.

Later Shiᶜite exegesis

Al-Tabrisī

Amīn al-Dīn Abū ᶜAlī al-Fadl b. al-Hasan al-Tabrisī (or al-Tabarsī) al-Sabzawārī (d. probably in 1153) lived and taught for a long time in Mashhad al-Rida (Mashhad), then settled in 1128–9 in Sabzawar, where he spent the last 30 years of his life.[33] His exact ethnonym has given rise to some discussion. If he really came from Tabaristan, then his ethnonym would have to be read as al-Tabarsī; but in fact, he seems to have come from the district of Tabriz (in Arabic, Tabrish), between Qum and Aba in northern Persia.[34]

The title of his first commentary is the *Majmaᶜ al-bayān li-ᶜulūm al-Qur'ān* [The Confluence of Elucidation in the Sciences of the Qur'an], begun when he was more than 60 years old. But then he discovered the commentary by al-Zamakhsharī and was inspired by this to write a new exegesis, and then finally a third one, *Jawāmiᶜ al-jāmiᶜ* [Collections of the Collection], finished in 1147, a compilation of the two previous works.

33. Brockelmann, 1937–49, Vol. 1, p. 405; Suppl., Vol. 1, pp. 708–9; Monnot, 1982–83, p. 35.
34. Le Strange, 1905, p. 211.

Our concern here is with his first commentary, characterized by a distinct kinship with accepted Sunni exegetic writings. Al-Tabrisī goes over every portion of the Qur'anic text to be explained, with variant readings according to pertinent justification in grammar, *lugha* (lexicographical elements), *iʿrāb* (grammatical elements) and so on, all of course from a theological and juridical viewpoint. He often quotes such Sunni authorities in exegesis as Ibn ʿAbbās, Mujāhid and Saʿīd b. Jubayr and also frequently draws on poetry.

Concerning passages of particular importance for Shiʿites, he gives the moderate Shiʿite point of view. The commentary is also Muʿtazilite in its outlook, with frequent quotations from Abū ʿAlī al-Jubbāʾī. Undoubtedly, as al-Tabrisī states in his introduction, his commentary owes a considerable debt to the *al-Tibyān fī tafsīr al-Qur'ān* [Elucidation of the Interpretation of the Qur'an] by the great Muʿtazilite and Shiʿite master Abū Jaʿfar Muhammad b. al-Hasan al-Tūsī (d. 1067). Still, al-Tabrisī's own work shows a remarkable degree of organization, and concern over linguistic issues is taken farther.

Abu 'l-Futūh Jamāl al-Dīn al-Rāzī

Al-Rāzī[35] came from an Arab family settled in Nishapur until his own grandfather decided to remove to Rayy, where this author taught (he died there in or after 1131). His *Rawd al-jinān wa-rawh al-janān fī tafsīr al-Qur'ān* [The Garden of Meadows and Repose of the Heart in Interpreting the Qur'an] appears to be the first such commentary in Persian. The author does not restrict himself to Shiʿite authorities, but also quotes al-Tabarī, at length, and others. On theological issues, al-Rāzī well represents the Shiʿite dialectical theology of his day, which agreed with the Muʿtazilites on the justice and unity of God (*al-ʿadl wa 'l-tawhīd*). But on more controversial issues, such as those concerned with defining the faith, intercession, and of course the imamate, he expresses the Shiʿite viewpoint.

The Muʿtazilites

Abu 'l-Qāsim al-Balkhī al-Kaʿbī

This Hanafite jurist and Muʿtazilite theologian (d. 931)[36] served in his youth as secretary to the Zaydite ruler of Tabaristan, Muhammad b. Zayd al-Dāʿī, and was later appointed vizier to the governor of Khurasan. Al-Kaʿbī was one of the outstanding representatives of Muʿtazilite thought in Khurasan and became no less famous in Baghdad from the time when he studied in the capital under the Muʿtazilite master al-Khayyāt (d. *c.* 913) and the grammarian al-Mubarrad (d. 898). His major work was a 12-volume commentary on the Qur'an which

35. Massé, 1930, pp. 243–9; Monnot, 1995, p. 315, no. 13.
36. Ibn al-Nadīm, 1970, Vol. 1, p. 304; *EIr*, 'Abu 'l-Qāsem al-Kaʿbī' (J. Van Ess); Van Ess, 1991–7, *TG* IV, p. 1068 (index).

has not survived except for quotations found in later works, notably the *Haqā'iq al-ta'wīl fī mutashābih al-tanzīl* [The Realities of Interpretation Concerning the Ambiguous Passages of Revelation] by al-Sharīf al-Rādī, the *Amālī* [Dictations] by al-Sharīf al-Murtadā and the Qur'anic commentary by al-Hākim al-Jushamī; also, at least three citations occur in the commentary of Fakhr al-Dīn al-Rāzī.

Abū Zayd Ahmad b. Sahl al-Balkhī

This scholar (d. 934)[37] was an Imami Shiᶜite in his youth, and then spent many years in Iraq where he studied philosophy and the exact sciences (the so-called 'foreign sciences', that is, those of Greek origin). Those of his works dealing with the religious sciences, such as his commentary entitled *Nazm al-Qur'ān* [The Fine Ordering of the Qur'an], were well received in orthodox circles. This work is lost, but passages are found quoted in later sources. Al-Balkhī also composed a book on rare words in the Qur'an (*Gharīb al-Qur'ān*).

Abū Saᶜd al-Muhsin b. Muhammad al-Hākim al-Jushamī (al-Jishumī)

Born in the village of Jusham (or Jishum in Persian pronunciation) in the district of Bayhaq, al-Jushamī died in Mecca – where he was murdered – in 1101. He studied under Muᶜtazilite and Zaydite scholars and then taught in Nishapur. Towards the end of his life, al-Jushamī himself professed Zaydite doctrines, and his works came to enjoy a considerable reputation, while he played a major role in transmitting the Muᶜtazilite *kalām* (dialectical theology) among the Zaydites. At least two of his works on *kalām* have survived.

His commentary in nine volumes, *al-Tahdhīb fī 'l-tafsīr* [The Fine Trimming in Matters of Exegesis], survives in several manuscripts. One advantage of this commentary, compared with al-Zamakhsharī's *al-Kashshāf* [The Unveiler], for example, is the solid support it shows for Muᶜtazilite doctrine, along with many quotations and whole passages of Muᶜtazilite exegesis which would otherwise have disappeared, from writers such as Abū Bakr al-Asamm and Abū ᶜAlī al-Jubbā'ī.

Al-Zamakhsharī

Jār Allāh Abu 'l-Qāsim Mahmūd b. ᶜUmar al-Zamakhsharī was born at Zamakhshar in Khwarazm in 1075. Like other scholars of his day, he travelled for purposes of study, and once in Mecca for the pilgrimage, elected to stay for some time, whence his sobriquet, Jār Allāh (Neighbour of God). After returning home, he died in 1144 at the capital Jurjaniyya (Gurganj). In theology, he professed Muᶜtazilite ideas; in law, he observed, in principle, the Hanafite system.

37. Van Ess, 1991–7, *TG* IV, p. 253; Rosenthal, 1989, pp. 287–301.

His commentary, entitled *al-Kashshāf ᶜan haqā'iq al-tanzīl wa-ᶜuyūn al-aqāwīl fī wujūh al-ta'wīl* [The Unveiler of the Truths of Revelation and of the Essences of Utterances Concerning the Aspects of Exegesis], was finished in 1134 and was long considered 'a model of Muᶜtazilite exegesis of the Qur'an'. In point of fact, while Muᶜtazilite standpoints are certainly to be found therein, many of its theological opinions remain 'often veiled'.[38] Al-Zamakhsharī brought together the doctrines of the two Muᶜtazilite schools still active in his day, that of the Bahshamites, i.e. the disciples of Abū Hāshim al-Jubbā'ī, and that of the followers of Abū Husayn al-Basrī, himself a dissenting disciple of the judge ᶜAbd al-Jabbār.[39]

In the history of Muᶜtazilism, however, al-Zamakhsharī amounts only to 'a distant successor, one of almost only marginal importance'.[40] In fact, his reputation for exegesis rests not so much on his Muᶜtazilism as on his qualities as a grammarian, philologist and master of rhetoric and literary criticism. While of course fully observing the Muslim position that the text of the Qur'an might never be imitated (on account of its *iᶜjāz*, or 'miraculous inimitability'), the way in which al-Zamakhsharī threw light on the use of metaphor in the Qur'an was nevertheless so acute that later commentators, even those most staunchly opposed to the least trace of Muᶜtazilism, did not hesitate to draw inspiration from his exegesis – or even to plunder it outright. Ibn Khaldūn was even moved to write that, if Arabic rhetoric was more highly cultivated in the Muslim East, especially by Persians, than in the Muslim West, this was because the *Kashshāf* was far more widely studied there. Al-Zamakhsharī's commentary was much glossed by later generations.

Abū Yūsuf ᶜAbd al-Salām b. Muhammad al-Qazwīnī

Probably the most voluminous Qur'anic commentary ever penned was that by the 'preternaturally long-lived' or *muᶜammar* (Zaydite) Muᶜtazilite scholar, Abū Yūsuf ᶜAbd al-Salām b. Muhammad al-Qazwīnī (d. 1095), a disciple of the judge ᶜAbd al-Jabbār. The number of volumes (*mujallads*) into which this commentary was divided amounted, we are told, to 300, 600 or even 700 volumes, deposited in the *waqf* (charitable endowment) attached to Abū Hanīfa's tomb at Baghdad. Even if this total must surely be somewhat exaggerated, there is no reason to doubt the testimony of Ibn ᶜAqīl, who writes that al-Qazwīnī's commentary on sura 2:102 ('They followed what the Satans recited unto them') took up an entire volume in itself. According to other sources, the first sura was dealt with in seven volumes. All in all, al-Qazwīnī's was certainly the longest Qur'anic commentary ever composed.

38. Gimaret, 1994, p. 11.
39. Madelung, 1986, pp. 485–95.
40. Gimaret, 1994, p. 11.

SUNNI EXEGESIS BASED ON *KALĀM*, OR DIALECTICAL THEOLOGY

Abū Mansūr Muhammad b. Mahmūd al-Samarqandī al-Māturīdī

This theologian, jurist and Hanafite commentator (d. 944) founded a school of *kalām* which came to be recognized as one of the two schools for orthodox Sunni doctrine, along with Ashᶜarism. But al-Māturīdī's doctrine, except for its Murji'ite definition of faith, was, in substance, more rationalistic in its approach, and so closer to Muᶜtazilism, than the doctrine of al-Ashᶜarī.

Al-Māturīdī's commentary, variously entitled *Ta'wīlāt al-Qur'ān* [The Esoteric Exegeses of the Qur'an] and *Kitāb Ta'wīlāt ahl al-sunna* [Book of the Esoteric Exegeses of the People of the *Sunna*],[41] is preserved in numerous manuscripts, of which several have survived complete. So far only his exegeses of the first two suras have appeared in print. The content of the work certainly does go back to al-Māturīdī, although not the exact wording, which seems to stem rather from the notes taken by several of his disciples. The commentary is of major interest not only as representative of Maturidite doctrine in Transoxania but also because it preserves much older exegetic material, including Muᶜtazilite interpretations. It might be added that al-Māturīdī deals with certain subjects in places unusual in Qur'anic commentary. But while his work was glossed, notably in the *Sharh* [Gloss] by ᶜAlā' al-Dīn al-Samarqandī (d. 1144), it has not, so far as appears, left traces in later Qur'anic exegeses.

Fakhr al-Dīn Abū ᶜAbd Allāh Muhammad al-Rāzī

Considered in later traditional Muslim perceptions as one of the *mujaddids* ('renovators') supposed to be sent by God to the Community of the Faithful at the beginning of each Islamic century, Fakhr al-Dīn al-Rāzī (1148–1209), also known as Ibn al-Khatīb (Son of the Preacher), was born in Rayy, where his father served as preacher (*khatīb*). Fakhr al-Dīn was trained by his own father, who was an Ashᶜarite and a disciple at one remove of Abu 'l-Maᶜālī al-Juwaynī. After his father's death, al-Rāzī moved to Nishapur, to Rayy, and finally to Maragha in Azerbaijan, there to study dialectical theology and philosophy (*al-kalām wa 'l-hikma*). Hence al-Rāzī's general training was ensured by highly qualified scholars in dialectical theology, legal methodology, dialectics, disputation and philosophy. He then travelled to Khwarazm, but encountered opposition from the local Muᶜtazilites and also from the Karramites[42] in Transoxania. Finally he settled in Herat, whose ruler, the Ghurid Sultan Ghiyāth al-Dīn Muhammad, allowed him to open a school in the city. Although he went on further journeys to such places as Samarkand and northern India, he spent most of the rest of his life in Herat.

41. Götz, 1965, pp. 27–70; Rahman, 1981; Rudolph, 1997*a*.
42. *EI*², 'Karrāmiyya' (C. E. Bosworth).

Al-Rāzī's commentary, variously entitled the *Mafātīh al-ghayb* [Keys to the Unseen] and *al-Tafsīr al-Kabīr* [The Major Commentary], was a work of his mature years, begun in Khurasan and pursued in various places. According to a number of older sources, he did not himself finish this work. Indeed, a number of clues tend to hint that the exegeses of suras 29–36 are not from his own pen. The commentary enjoys its own niche in the field of Sunni interpretation of the Qur'an.[43] Certainly, all the usual apparatus of Qur'anic commentary is to be found therein: problems of grammar, textual variants, judicial issues, *hadīths* of the Prophet quoted and their successive exegeses – albeit without their *isnāds*, unlike the case with al-Tabarī and other commentators – and finally, references to previous interpreters of the Qur'an including, in this case, the Muᶜtazilites.[44] But not only is al-Rāzī's exegesis of the type known as 'one relying upon personal opinion' (*bi 'l-ra'y*), but it is also very much a philosophical commentary, within the guidelines set by *kalām*. Where al-Rāzī considers it appropriate, he holds forth on various issues in the form of scholastic *quaestiones* (Arabic, *mas'ala*, pl. *masā'il*), to which he appends the opinions of different scholars with their lines of argument before concluding with his own. Although al-Rāzī's orientation was deliberately anti-Muᶜtazilite, he owed a considerable debt to their exegeses.

Two further commentators

Here we must deal with two commentators who cannot be classified under any of the former headings. The first is al-Shahrastānī, a dialectical theologian whose Ashᶜarite tendencies have been pointed out, but whose Qur'anic exegesis is now perceived as showing a distinct Ismaᶜili strain. The second is al-Baydāwī, a dialectical theologian who betrays no such traits in his Qur'anic commentary, to the point of composing a work which became almost a manual for exegesis.

Tāj al-Dīn Abu 'l-Fath Muhammad al-Shahrastānī

Al-Shahrastānī came from the small town of Shahristan in what is now Turkmenistan, studying there and at Nishapur, where most of his teachers were former disciples of al-Juwaynī. He not only wrote the *Kitāb al-Milal wa 'l-nihal* [Book of Creeds and Sects], but also composed a commentary entitled *Mafātīh al-asrār wa masābīh al-abrār* [Keys to the Mysteries and Beacons for the Pious].[45] This last survives only in a single manuscript copied from the author's own original and includes a preface, an introduction in 12 chapters and a

43. Arnaldez, 1960, pp. 307–23.
44. Jomier, 1982, pp. 145–72.
45. Monnot, 1984, pp. 305–15; 1985, pp. 293–302; 1986, pp. 347–50; 1987, pp. 253–7; 1988, pp. 237–43; 1989, pp. 249–54.

commentary bearing on the first and second suras of the Qur'an. The original work itself was begun in 1143 and finished two years later. It is not known if the author went any farther than the first two suras, although it is likely that he did so.

There has been considerable debate concerning al-Shahrastānī's own doctrinal orientation. Was he a Sunni,[46] and still more, an Ashᶜarite one? A follower of the philosophers? Or a Shiᶜite, perhaps even an Ismaᶜili?[47] Study of his commentary discloses that five or six passages therein are specifically Ismaᶜili.[48] Thus he addresses the second 'mystery' of Qur'an 2:1 (i.e. the meaning of the three enigmatic letters *alif*, *lām*, *mīm*), where he is concerned to equate these with the three principles of creation, sc., intellect, soul and matter; with the three spiritual beings, al-Jadd, al-Fat'h and al-Khayāl; and with the three archangels, Gabriel, Michael and the Seraph. Other Ismaᶜili traits may be seen in al-Shahrastānī's references to the opposing pair of the 'accomplished' and the 'so far inaccomplished' (*al-mafrūgh wa 'l-musta'naf*); his clearly and repeatedly enunciated distinction between the *wasī* (designated successor) who is heir to the Prophet, and the imam who comes after the *wasī*, and so on.[49]

Would it not be possible, then, to formulate a working hypothesis regarding the doctrine which evolved with al-Shahrastānī? He wrote his *Kitāb al-Milal* in 1127. He began his commentary 17 years later. He tells us that his knowledge of the Qur'an was merely literal at first, and that only when he came to Nishapur did the exegesis by his master Abu 'l-Qāsim al-Ansārī unfold its meaning to his burgeoning intelligence. His statement can be understood from three perspectives: that of *kalām*; that of a mystical orientation; and both of those at the same time, since this particular master was at once a dialectical theologian and a mystic.

Al-Shahrastānī did not, of course, derive his tendency to interpret the Qur'an according to Ismaᶜili thinking from this same master. More probably, al-Shahrastānī's guidance in these matters stemmed from another person whom he does not explicitly name but alludes to obliquely as his guide to this most subtle mystery (*ilā hādhā 'l-sirr al-latīf*). One cannot, therefore, rule out the possibility that al-Shahrastānī's initiation into Ismaᶜili gnosis occurred after he wrote his *Kitāb al-Milal*, which would explain the discrepancies we find regarding his doctrinal stand. Nevertheless, one should not reduce al-Shahrastānī's commentary to a question of Ismaᶜili metaphysics alone, for his exegesis belongs fully to the tradition of the great classical commentaries, in the light of the keen interest shown by the author both in linguistic issues and in exoteric exegesis (*tafsīr*). Al-Shahrastānī always takes pains first to present

46. Al-Shahrastani, 1986, pp. 52–63.
47. Madelung, 1976, pp. 250–9.
48. Monnot, 1987, pp. 255–3; 1988, pp. 238–40; 1989, pp. 249–53.
49. Monnot, 1989, pp. 252–3; 1995, pp. 291–5.

an exoteric interpretation, referring to the leading authorities in the field, before proceeding, if need be, to the *asrār* (secrets; sing. *sirr*) of the matter, that is, to an 'esoteric' exegesis (*ta'wīl*).

Nāsir al-Dīn Abū Saᶜīd ᶜAbd Allāh al-Baydāwī

This Shafiᶜite jurist was born into a family of jurists and became judge for the province of Fars. Under the Mongol Il Khan Arghūn (1284–91), al-Baydāwī resumed his judgeship in his native town of Bayda, to the north of Shiraz. Several sources maintain that al-Baydāwī was granted this post as a reward for his commentary on the Qur'an, but this is somewhat difficult to believe, given that Arghūn was a Buddhist, indifferent to Islam and with little reason to show enthusiasm for this kind of literature. In later life, al-Baydāwī settled in Tabriz, and there he died.

Although al-Baydāwī wrote works on *kalām*, his great exegetic work was the *Anwār al-tanzīl wa-asrār al-ta'wīl* [The Lights of Revelation and the Mysteries of Interpretation]. This was not only a rather short work, very different in its approach from the method followed by such dialectical theologians as al-Māturidī and Fakhr al-Dīn al-Rāzī, but it also became one of the single most popular commentaries on the Qur'an in all Islam. As such, it has been the subject of many glosses, and with that of al-Khatīb al-Kāzarūnī, al-Baydāwī's work now forms part of the curriculum of the university of al-Azhar in Cairo.

Al-Baydāwī's commentary depends a great deal upon al-Zamakhsharī's, which is why it is often regarded as a mere abridgement of the *Kashshāf*. But al-Baydāwī actually draws upon a great many other sources, which he unfortunately fails to mention either in his introduction or in the text proper. He touches upon all the usual fields of Qur'anic interpretation. Whereas he deals more than al-Zamakhsharī does with variant readings and issues of grammar, he avoids, of course, repeating al-Zamakhsharī's theological views in so far as possible.[50] Some of these views of al-Zamakhsharī still lurk in al-Baydāwī's text, however, probably because al-Baydāwī himself remained unaware of their full implication. This is the reason why, over two centuries later, al-Dāwūdī wrote an addendum to his master al-Suyūtī's gloss on al-Baydāwī's commentary, detecting those Muᶜtalizite ideas to be found in the text which al-Suyūtī himself had overlooked.

MYSTICAL EXEGESIS: THE COMMENTARY BY AL-SULAMĪ

No basic work exists on the history of mystical exegesis in Islam in general,[51] still less one which might concern the region under consideration here.

50. Nöldeke, 1919, pp. 176–7.
51. See nevertheless, Goldziher, 1920, pp. 180–262.

Consequently we must restrict ourselves to presenting the mystical exegesis of al-Sulamī alone.

Abū ᶜAbd al-Rahmān Muhammad al-Sulamī came from a family of Arab origin settled in Nishapur. His education was seen to by his maternal grandfather, who had come into contact with the great Sufi master, Junayd, the outstanding mystical figure in the Baghdad of his day. His grandson himself was initiated into Sufism by the Hanafite judge Abū Sahl Muhammad al-Suᶜlūkī (d. 980). After long years of travel for study which took him to several cities of Khurasan and Iraq, and then on to Mecca, al-Sulamī returned to Nishapur in about 977.

The full list of al-Sulamī's works includes some 100 titles, of which 30 remain extant in manuscript. Little, however, has been printed besides his *Tabaqāt al-Sūfiyya* [Generations of the Sufis]. Thus only small extracts of his major commentary on the Qur'an, the *Haqā'iq al-tafsīr* [The Spiritual Realities of Exegesis], which exists in two versions, a longer and a shorter, have been published. After finishing this commentary, however, al-Sulamī then appended a separate addendum, entitled *Ziyādāt al-haqā'iq* [Additions to the Spiritual Realities], which has recently been published.[52]

Al-Sulamī was not an original author. He collected the larger part of his materials during the course of his travels, particularly in Merv, Baghdad and Mecca, and this shows most especially in his Qur'anic exegesis. His approach is methodical and rigorous. He bans subjects of an edifying, anecdotal or hagiographic nature. He moreover avoids those issues dealt with in juridical commentary or in exegesis based upon *hadīth*, as well as technical or philological points, that is, those materials pertaining to 'exoteric learning'. The only kind of interpretation he addresses is that which he considers the matter for a mystical exegesis of the Qur'an, according to the principle stated in his introduction: 'Understanding the Book of God according to the Language of the People of the Truth'.[53] Such an esoteric approach to interpreting the Qur'an naturally led to disapproval among orthodox divines. Even so, al-Sulamī's commentary remains a valuable document: not only are the Sufis' own understandings of Scripture enshrined therein, but his work also contributed to the establishment of mystical exegesis as an independent branch of Qur'anic hermeneutics. Thus al-Sulamī's exegesis came to represent, for Sufi interpretations of the Qur'an, what the commentary of al-Tabarī had been to traditional exegesis.[54]

It goes without saying that many further mystical commentaries were then composed in the region (and this down to a very late period), such as the *Bahr al-durar* [The Ocean of Pearls] by Muᶜīn al-Miskīn (d. 1501 or 1502).

52. Böwering, 1995, pp. 35–56.
53. Böwering, 1991, p. 50.
54. Ibid., p. 56.

Part Three

THEOLOGY

(C. Gilliot)

The beginnings of theology in the region

The beginnings of theology in the Iranian area – in the widest sense of the term – are difficult to pin down precisely, for several reasons. The written sources are far less numerous than for Syria or Iraq, for example. Also, local non-Muslim influences sometimes considerably retained their grip. Finally, from the very outset of the Islamic period, this area was one of cultural synthesis. So far as the study of *hadīth* is concerned, the great number of Kharijites in the area, coupled with the supremacy of the Hanafites in law and the unsettled conditions along the frontiers, meant that its development was much delayed. However, since the Muslim governors came with troops and officials, the Hanafites in Kufa saw the Iranian region as one where they might prosper, and later on, native-born scholars also took to travelling 'in search of learning'. We have more information concerning conditions in eastern Iran, because this is where the ʿAbbasid revolution was sparked; hence the interest aroused in the region among the historiographers in Baghdad.

JAHM B. SAFWĀN

This *qāss* (popular preacher and story-teller) (d. 746) mostly plied his calling in Transoxania. He almost certainly dwelt, and probably first preached, in the main urban centre of northern Bactria, Tirmidh (Termez), which was long a centre of his doctrines.[55] Exactly what the elements of Jahm's doctrines were is not so easy to determine, but it seems that his conception of God conditioned his representations of faith, of which he had a minimalist concept, which might consist only in acknowledgement by the heart, not in affirmation by the tongue; this may have stemmed from the fact that Transoxania for several centuries remained 'mission' territory. For how was it possible to demand a detailed, explicit profession of the faith – be it only the simple *shahāda*, testifying to the oneness of God and the prophethood of Muhammad – from people with whom communication was so difficult and who knew no Arabic?[56] For Jahm, all human existence lay under the sign of election through divine grace, and God alone determined what occurred. Acts might be attributed to men only in a

55. Van Ess, 1991–7, *TG* II, p. 557.
56. Ibid., p. 497.

figurative sense, as we might say that a tree shudders, or the vault of the sky revolves, or the sun sets – but God acts thereby through the tree, through the vault of the sky and through the sun, although he creates in man a force by which an act comes into being. Indeed, in so far as outside the Creator nothing exists but what has been created, then the Qur'an, too, has been created.[57] All the same, we are dealing here not so much with a teaching of predestination as with a sort of universal determinism, if only on account of the fact that, in Jahm's view, God enjoys no previous knowledge; only when something occurs does He know it.

MUQĀTIL B. SULAYMĀN

Muqātil has already been considered as a Qur'an commentator (see above, p. 99–101), but he was also, like Jahm, a *qāss* (popular preacher), one living on the fringes of the *dār al-Islām* (Abode of Islam) as a *ghāzī*. However, his theological ideas were on many points diametrically opposed to those of Jahm. Indeed, theological accusations of anthropomorphism came to be levelled against him, although Muqātil's surviving works do not always show why this was the case. A possibility which cannot be ruled out, however, is that transmitters of Muqātil's writings, perhaps even later redactors of his works, suppressed a number of his original formulations which had provoked no undue shock when first uttered in Khurasan but then provoked outrage in Baghdad.

When discussing the Assimilationists (*Mutashabbiha*), al-Ashʿarī (d. 935) singles out what he considers to have been a group of Muqātil's followers. A number of their tenets on God are summarized by al-Ashʿarī thus: 'God is a body. He has fine flowing hair. In man's image, unto Him are flesh, blood, hair and bone. Unto Him are limbs and organs, such as hands, feet, head, eyes. His is a body that is compact. And despite this, He resembles nothing, nor does aught resemble Him.' Al-Shahrastānī, for his part, shows deference to Muqātil's memory, to the extent of ranking him among the 'Pious Ancients'. However, he discreetly indicates that Muqātil's doctrine concerning the 'form' of God is identical to that professed by a certain so-called Shaytān al-Tāq (The Satan of the Gateway), the sobriquet of one Muhammad b. al-Nuʿmān Abū Jaʿfar al-Ahwal, referred to by the Shiʿites, however, as Mu'min al-Tāq (The True Believer of the Gateway).[58]

So far as the world to come is concerned, in Muqātil's view the joys of paradise for true believers and the punishments of hell for infidels are to last for ever. This is quite the opposite of what Jahm b. Safwān had maintained, probably on account of Jahm's own ontological system. As Jahm saw it, eternity

57. Van Ess, 1991–7, *TG* IV, pp. 627–8.
58. Al-Shahrastani, 1986, p. 540 and no. 206.

meant that nothing could any longer abide besides God.[59] One aspect of Muqātil's thought classes him with the Murji'ites, however: in his system, good works and pious acts are not to be included in what was considered faith.

THE KHARIJITES

The Kharijites may have fuelled an opposition movement which was at once political and religious, but as J. Wellhausen pointed out a long time ago,[60] this should not obscure the fact that they also made a considerable contribution to the development of Muslim theology. They forced it to develop both directly and indirectly by spurring thought on such issues as faith, predestination and free will. The Kharijite movement in the region spread essentially outside the main administrative urban centres, in such areas as Sistan and Khurasan; indeed, many of the leaders who gave their names to various Kharijite sub-groups stemmed from precisely these districts, or carried out part of their activities there.

It is not easy precisely to locate and localize these groups, whose followers tended to be referred to as 'folk along the borders' (*as'hāb al-atrāf* or *atrāfiyya*), probably meaning that they dwelt in areas still mainly peopled by 'infidels', that is, those not yet converted to Islam. Their numbers and strength enabled them to hold the ᶜAbbasid government in check during some three decades around the turn of the eighth and ninth centuries. (For details, see Volume IV, Part One, Chapter 2, pp. 42–4.)

THE MUᶜTAZILITES

The first contacts with the Muᶜtazilite movement in some of the areas under consideration go back to the period of Wāsil b. ᶜAtā' (d. 748–9), who dispatched his missionaries thither. Thus a certain Hafs b. Sālim was sent to Khurasan, where his base of operations became Termez; here he argued with Jahm b. Safwān.[61] Iran proved particularly receptive to the Muᶜtazilite movement, and it was here, with Yemen, that it survived the longest.[62] Geographers and historians describe at length the Muᶜtazilite communities of Khuzistan, Fars and Kirman.

The larger part of the Muᶜtazilite writings which have been discovered over the last few decades, especially in Yemeni collections, go back to the Qādī ᶜAbd al-Jabbār al-Asadābādī (d. 1025), who served as chief justice in Rayy, and

59. Van Ess, 1991–7, *TG* II, p. 531.
60. Wellhausen, 1901.
61. Van Ess, 1991–7, *TG* V, p. 152.
62. Ibid., p. 241.

his circle of disciples. Some two-thirds of ᶜAbd al-Jabbār's theological summa, the *Kitāb al-Mughnī fī abwāb al-tawḥīd wa 'l-ᶜadl* [Book that is Sufficient for the Tenets Concerning Unity and Justice], have been preserved and published, while his teachings on *kalām* are succinctly presented in two other works. A disciple of ᶜAbd al-Jabbār, one Abū Rashīd al-Naysābūrī (d. *c.* 1068), wrote a presentation of the controversial issues in dispute between the Muᶜtazilites in Basra and Baghdad, the *Kitāb al-Masā'il fī 'l-khilāf bayn al-Basriyyīn wa 'l-Baghdādiyyīn* [Book of Issues in Dispute between the Scholars of Basra and Those of Baghdad].

These works, together with various commentaries on them and on some works now lost, show the extent of literature on *kalām* cultivated by the circle of ᶜAbd al-Jabbār's disciples, along with the ramifications which linked such writings to Zaydite thought in the Caspian region of the day; it was these links that helped these works to survive. When, in the course of the twelfth century, Zaydite literature from the Caspian area was introduced among the sister communities of Yemen, such Muᶜtazilite writings thereby escaped the decline which then engulfed Muᶜtazilite and Zaydite thought in the Caspian area.[63]

Further writings of ᶜAbd al-Jabbār's school might be listed, and still others may one day be found and identified. One follower of the school deserves mention because he was important for transmitting Muᶜtazilite *kalām* among the Zaydites: Abū Saᶜd al-Bayhaqī, also known as al-Ḥākim al-Jushamī[64] (d. 1101), who professed Zaydism towards the end of his life (see on him above, p. 110).

The works of the Khwarazmian Rukn al-Dīn Maḥmūd al-Malāḥimī, also known simply as Ibn al-Malāḥimī (d. 1141), allow the reconstruction of part of the teachings of still another of ᶜAbd al-Jabbār's disciples, Abu 'l-Ḥusayn al-Basrī (d. 1044). A portion has survived of Ibn al-Malāḥimī's very detailed work, the *Kitāb al-Muᶜtamad fī usūl al-dīn* [Book to be Relied upon Concerning the Principles of Religion], as well a shorter but completely preserved work, the *Kitāb al-Fā'iq fī usūl al-dīn* [Outstanding Book Concerning the Principles of Religion]. Abu 'l-Ḥusayn's school also found followers among the Zaydites, and further exerted influence upon the Twelver Shīᶜites. In the writings of Fakhr al-Dīn al-Rāzī, Abu 'l-Ḥusayn's followers are presented as one of the two still living schools of Muᶜtazilism in al-Rāzī's day. By this time, however, the Muᶜtazilites had already yielded considerable ground to the Sunnis; they lingered on in Khwarazm down to at least the beginning of the fourteenth century, but without apparently producing any further significant works on *kalām*.

Yet in an earlier period there, Muᶜtazilite missions had borne considerable fruit under the local ruling dynasty of the Ma'mūnids (995–1017). At the

63. Madelung, 1965, pp. 191 et seq.
64. Ibid., pp. 187–91; Van Ess, 1980, pp. 19–30.

request of a high official of the royal court in Gurganj, ᶜAbd al-Jabbār wrote *c.* 1010 his *Kitāb Fadl al-iᶜtizāl* [Book on the Excellence of Muᶜtazilism], which remains to this day the best biographical source we have for the history of this school. Among other items of information, we are told that Muᶜtazilism was introduced into Khwarazm and spread there through the philologist, man of letters and physician Abū Mudar Mahmūd al-Dabbī al-Isfahānī (d. 1014 in Merv), although this information should be treated with caution.

Khurasan was also an important region for Muᶜtazilite thought, notably in Nishapur. Abū Zufar Muhammad al-Makkī (d. ?) may have been the first Muᶜtazilite scholar to settle in this city.[65] The geographer and traveller al-Maqdisī, who traversed Khurasan and the rest of Iran in 984–5, tells us that there was still a sizeable Muᶜtazilite minority there.[66]

In so far as the spread of Muᶜtazilite thought in Transoxania was concerned, we know of three theologians from this region who moved to Khuzistan in the closing decades of the ninth century to hear the teachings of Abū ᶜAlī al-Jubbā'ī: Abū Saᶜīd al-Usrushānī ('the man from Usrushana', on the middle Syr Darya), Abu 'l-Fadl al-Khujandī ('the man from Khujand', in Ferghana) and Abu 'l-Fadl al-Kishshī ('the man from Kish', to the south of Samarkand).

Hanafite tradition before al-Māturīdī

THE BIRTH AND DEVELOPMENT OF HANAFITE THEOLOGY IN THE EIGHTH AND EARLY NINTH CENTURIES[67]

The Murji'ite school apparently took root swiftly and strongly in eastern Khurasan, in Juzjan, in Tukharistan, in Balkh, in Samarkand and generally throughout Transoxania, on account of what seems to have been the rapid development of Abū Hanīfa's school, to such an extent that scholars in Kufa – probably hostile to Abū Hanīfa – nicknamed the whole town of Balkh 'Murji'abad' (Murji'ville).[68]

A well-known judge in Balkh was Abū Mutīᶜ al-Hakam al-Balkhī (d. 814). From Abū Hanīfa, this Abū Mutīᶜ transmitted a series of doctrinal pronouncements which were soon grouped together under the title *al-Fiqh al-akbar* [The Greatest Legal System], probably the first text for Murji'ite guidance to circulate in Balkh. Over the years, this text was reshaped and enlarged several times and is now known by the title *al-Fiqh al-absat* [The Most Extensive Insight],

65. Van Ess, 1991–7, *TG* IV, pp. 251–3; Arazi, 1979, pp. 285–6.
66. Bulliet, 1972, pp. 33–8, 252–3.
67. Rudolph, 1997*a*, pp. 25–77.
68. Madelung, 1982, p. 36; 1985.

as compiled by one Abu 'l-Hasan ᶜAlī al-Fārisī (d. 947). It contains the typically Murji'ite tenet regarding the faith, whereby if a man were to convert to Islam in an infidel land, and continue there to profess Islam while remaining without knowledge of either the Qur'an or the required Muslim devotions, then he should still be considered a believer.[69] As it stands now, the text is not written according to any consistent plan and is filled with interpolations and repetitions. The single portion certainly due to Abū Hanīfa is only to be found in the beginning, and the various theological tenets borne along within this body of writing pertain, we may be sure, to polemics in Balkh against the followers of Jahm and, on occasion, against Muqātil b. Sulaymān himself. The defining of the human capacity to act (*istitāᶜa*), as given in this text, seems to have been at first directed against the Qadarites but then to have been modified for use against the Muᶜtazilites. On account of these various reshapings, it is rather difficult now to recover the teachings of Ibn Mutīᶜ in their original form.

Abū Hanīfa's teachings then found their way to Samarkand with Abū Muqātil al-Samarqandī (d. 823).[70] Abū Muqātil himself penned the record of the conversations he allegedly held with Abū Hanīfa on the basic doctrines of the Murji'ites in his *Kitāb al-ᶜĀlim wa 'l-mutaᶜallim* [Book of the Learned One and of Him Who Would Acquire Learning]. Abū Muqātil's text expresses the Murji'ite stand on the faith, but also contains traits of ascetic thinking and provides a more popular-oriented version of Murji'ite teachings. Otherwise, Samarkand does not seem to have given birth to any further eminent representatives of Murji'ite thought; instead, the city looked for guidance along these lines towards Balkh.[71]

Murji'ites were also to be found in Herat, but there were far fewer in Bukhara, where a strongly entrenched Sunni traditionalism brought its powerful influence to bear upon Hanafite tenets. Murji'ite thought was well represented in Merv, however, where those judges whose names are known to us are seen to have been Hanafites even well into the twelfth century. Regarding Nishapur, we know little concerning the dominant religious atmosphere before the early tenth century – although here, as often elsewhere, we do know that most of those who followed Murji'ite tenets were also Hanafites. By the early eleventh century, followers of the Shafiᶜite rite only prevailed in Nishapur, and here it is clear that a 'Sunni reaction' had paved the way for them.

69. Wensinck, 1932, p. 103.
70. Van Ess, 1991–7, *TG* II, pp. 560–2; Madelung, 1982, pp. 37, 39; Rudolph, 1997*a*, pp. 45–57.
71. Madelung, 1982, p. 39.

The state of theology in the ninth century

One gains an impression of relative stagnation in eastern Islamic theology in the course of the ninth century, when the situation in Central Asia is compared with developments in Iraq after the period of the *Mihna* (inquisition) there between 833 and 851. This did not mean that the Hanafites gave way; quite the contrary, since the most important judicial positions in the Central Asian region were bestowed upon them. In the eastern lands in general, Hanafite thought predominated by a wide margin, and its stress lay in concentrating on problems of law. Even so, the paucity of theological texts from this age should induce some caution in our search for the reasons underlying such theological stagnation. One name in theology stands out, however, that of Abū Bakr Muhammad al-Samarqandī (d. 881–2), who wrote a *Radd ʿalā 'l-Karrāmiyya* [Refutation of the Karramites] and delved in dialectical theology, although the only work of his to have survived is one on issues of law.

The Karramites and the Hanafite elements in their theology

It might appear surprising that we should deal here with a figure like Ibn Karrām, instead of relegating him to the category of founders of 'sects', as did the heresiographers. Al-Shahrastānī, however, classifies him, while not sparing censure, of course, among those who professed that God had attributes.[72] But there is more to it than this. As U. Rudolph puts it: 'On many basic positions, both in law and in theology, [his ideas] were built upon representations earlier developed by Abū Hanīfa and even further pursued by the eastern Hanafites.' [73]

The ascetic Muhammad b. Karrām al-Sijistānī al-Naysābūrī (d. 869)[74] came from Sistan. Those writers on heresy and theology who discuss his teachings mainly level charges against him of anthropomorphism and literalism and accuse him of having disputed God's wisdom, of having separated the issue of one's adherence from the heart from one's formal profession of the faith, and of having forged a large number of *hadīths* in support of his own tenets. In fact, Ibn Karrām seems to have regarded the Muʿtazilite view of this world as 'the best of all possible worlds' (*aslah*) as absurd and 'that it was just as impossible to know the acts of God as it was to know what were His rational laws'. It follows, then, that while Ibn Karrām seems to have belonged to the Hanafite

72. Al-Shahrastani, 1986, pp. 347–61.
73. Rudolph, 1997*a*, p. 84.
74. *EI²*, 'Karrāmiyya' (C. E. Bosworth); Bosworth, 1960, pp. 5–14; Madelung, 1988, pp. 39–53; Van Ess, 1980; 1991–7, *TG* II, pp. 609–10; Rudolph, 1997*a*, pp. 82–7.

school of law, he differed from it on more than one issue. It appears that his view of the law as something irrational allowed him to carry his thinking one step farther and so to consider as enjoying relative value only, for example, those stipulations which enjoined ritual purity.

The ascetic character of this doctrinal group, sometimes considered 'a Sunni group holding a central position of defence against the Muᶜtazilites on the one hand and the *ahl al-hadīth* on the other',[75] along with its missionary claims, helped it spread in the course of the eleventh century throughout the central and eastern Islamic world, and make its presence notably felt in Nishapur. The group's last stronghold lay in the highlands of Ghur, in central Afghanistan. The founders of the various splinter groups into which the Karramite doctrinal trend finally disintegrated were also the last theologians of this particular school. Thus Muhammad b. al-Haysam al-Nābi (or al-Nāwī, d. 1019 in Nishapur), who originally came from the Hari Rud valley, tried to reform the older doctrines of the school on so many important points that some observers wanted to clear him of any suspicion of ever having been a Karramite.

Theology in the age of al-Māturīdi

At about the time that al-Ashᶜari (d. 935) was writing his *Maqālāt al-Islāmiyyīn* [Discourses of the Muslims], the Hanafite jurist Abū Mutiᶜ Mak'hūl al-Nasafi (d. 930) was composing his own *al-Radd ᶜalā 'l-bidᶜa* [Refutation of (Blameworthy) Innovation]; he was ancestor in turn to a line of scholars which finally produced the notable Maturidite theologian Abu 'l-Muᶜin Maymūn al-Nasafi al-Mak'hūli (d. 1104). Mak'hūl's work offers a valuable source of information for the author's own region, especially as, unlike al-Ashᶜari, Mak'hūl gives vent to his own opinions regarding the various 'heretical' views he sets forth. Even so, modern scholars have had some difficulty in characterizing Mak'hūl's own theological scale of values. At one stage, his writings were regarded as an expression of classical Hanafite doctrine, but recently he has been perceived as bestowing on his *fiqh* a very distinct Karramite slant.[76] As with the Karramites, Mak'hūl spurns this world and all material possessions, but does not, however, display his Karramite commitments and, indeed, may be at times taking some pains to hide them.

Such caution and restraint as observed in some Karramite circles finally vanish, however, in the *Kitāb al-Sawād al-aᶜzam* [Book of the Vast Majority (of People)], where the theological tenets of the Hanafites in Transoxania in this period are clearly set out. The Samanid ruler Ismāᶜil b. Ahmad (892–907)

75. *EI*², 'Karrāmiyya' (C. E. Bosworth).

76. Rudolph, 1997*a*.

ordered a group of scholars versed in Hanafite religious learning to compose this handbook, in the hope of stemming the tide of heresies threatening Transoxania and especially Samarkand. The scholars' choice fell on one Abu 'l-Qāsim Is'hāq al-Samarqandī (d. 953), also called al-Hakīm (The Wise One) because he was a Sufi. The *Kitāb al-Sawād al-aᶜzam* is of tremendous importance for our knowledge of theological trends in the Transoxania of this age, for it even helps us to assess developments concerning the author's immediate contemporary, al-Māturīdī, although it is not yet clear whether al-Hakīm was a disciple of al-Māturīdī, the first 'Maturidite' as it were, or whether his handbook was a mere traditional document on Hanafite doctrine.[77]

Al-Māturīdī's teachings in themselves did not represent an absolute break with previous theological trends in Samarkand in particular, or in Transoxania in general, even if he introduced some changes. But the development of his theology went through several stages, in which one should distinguish three categories of representations. In the first category, there are those articles of faith where al-Māturīdī, and the author of the handbook, are in agreement with such eastern Hanafites as Abu 'l-Muqātil al-Samarqandī and Abū Mutīᶜ al-Balkhī. In the second category, there appear doctrinal elements concerning articles of faith which are common both to al-Māturīdī and to the author of the handbook, but which are not to be found in the writings of earlier Hanafites; how such a development occurred we do not know. At best, we might suppose that discussions held by these two men with the Karramites, notably on anthropomorphic conceptions of God, spurred the development of al-Māturīdī's and al-Hakīm's own theological ideas. In the third category, finally, we have those theological tenets wherein al-Māturīdī and al-Hakīm diverge. Such divergence, then, shows that these two scholars were not linked in a relationship of master to disciple. In this regard, it is al-Hakīm who stands for traditional Hanafite thought while al-Māturīdī blazes new trails, seeking further to refine a doctrine.

Al-Māturīdī and Maturidism

AL-MĀTURĪDĪ AND HIS THEOLOGY

We have few biographical data for Samarkand's major theologian, al-Māturīdī (d. 944), and from his own hand we possess only two works: his commentary on the Qur'an (see p. 112 above) and his *Kitāb al-Tawhīd* [Book on Unity]. The purpose of this last was to present Islamic theology as an all-embracing construction, one based upon unassailable argumentation. The book is divided

77. Madelung, 1985, p. 30; Rudolph, 1997*a*, pp. 111–12.

into two parts. The first part, after the author has discussed his own theory of knowledge, deals with God: the Creation, God's Being, Revelation and the Divine Act. The second part deals with man and his acts: human action, sin and faith.

At the outset, it may be noted that al-Māturīdī does not develop a systematic conception of being and seems even somewhat uninterested in the finer shades of this particular discipline of thought. Instead, his insistence on the fact that all that exists consists of 'accidents' may well be a reaction against dualist thinkers (notably the Manichaeans), a number of whom were still to be found in Samarkand and who held that the world is constituted of 'bodies'. In contrast to thinkers of other Sunni trends, notably the Ashᶜarites, al-Māturīdī professes the possibility of a rational knowledge of God, and in this regard stands close to the Muᶜtazilites. But he argues at all costs against deducing therefrom any analogy of the form of Being whatsoever between the Creator and the Created.

Concerning God's unity, one might say that al-Māturīdī, more than other theologians, emphasizes God's name as the One, specifically insisting that God's unity cannot be confused with the numeral *one* of arithmetic; such representations of transcendence, of the incomparable character of the supreme principle, are already to be found in the Neoplatonists. Concerning the doctrine of the divine attributes, Transoxanian Hanafite theologians had argued that God did have attributes, such as His knowledge and His might, but that these were independent entities, not identical with God's existence. These attributes differed from those which went by the same name among human beings but could not be stripped of their meaning through allegorical interpretation; and regardless of whether these attributes pertained to God's entity or to God's acts, they were eternal. Al-Māturīdī not only agrees with these three fundamental tenets – which contrast with the tenets defended by Muᶜtazilite theology – but also provides bases for them through argument.

While al-Māturīdī professes belief in the doctrine of the Beatific Vision (*ru'ya*) of God in the afterlife, he does not consider this identical to a perceptive *idrāk* ('apprehension' or 'grasp') by eyesight, for eyesight consists in 'apprehending the limits of a thing', and this is excluded for God.

A fundamental concept completes al-Māturīdī's discourse on theodicy, or the issue of God's justice: it concerns the issue of God's wisdom. For the Muᶜtazilites, the justice and wisdom of God constituted norms which might be apprehended through reason. In the Ashᶜarite view, by contrast, God alone determined what justice and wisdom might be, and such concepts were not at all to be regarded as objective norms, nor indeed might they be apprehended through reason; al-Māturīdī agrees here with al-Ashᶜarī that God acts freely and does so in a supreme measure.

So far as human actions are concerned, or regarding the issue of predestination or free will, the Hanafites had defended the notion that man, when he

acts, at all times enjoys the capacity of acting in one of two opposing directions. Al-Māturīdī takes this argument further, by developing the idea of man's *ikhtiyār* (free choice). Al-Māturīdī distinguishes two capacities for action in man. The first of these capacities is enjoyed by man as something innate; the second, however, man only secures by means of the act itself, and therein lies his possibility of choice. But thereby, too, man remains dependent upon his Creator.

Regarding faith and sin, al-Māturīdī, here again, observes older Hanafite tradition, but bases it upon solid argument. Moreover, he rejects the traditional doctrine upheld by al-Ashᶜarī according to which faith is uncreated. In al-Māturīdī's view, faith in its substance may neither wax nor wane, but consists essentially in the adherence of the heart, as expressed through the verbal profession of the creed. As al-Māturīdī further sees it, a believer, even one who has committed a serious sin, remains a believer; he may be punished by God in hell but not eternally, and the Prophet may intercede favourably on his behalf.

Al-Māturīdī's thought involves a speculative theology, one allowing us to say that with him, indeed, dialectical theology made its true start in Transoxania.

The formation of Maturidite theology

This was the fruit of a long process, which can be summarized in three stages. In the course of the first one, lasting up to the end of the tenth century, nothing of importance occurred. Most of the Hanafites in Transoxania in this period clung to their old-fashioned Hanafite doctrines and paid no attention to what al-Māturīdī wrote; this emerges from the fact that one of the dominant figures in the generation which followed al-Māturīdī, Abu 'l-Layth al-Samarqandī (d. 983), fails to mention the master once in any of his works.

The second stage begins *c.* 1000. North-eastern Persia now became aware of the existence of Ashᶜarism, in so far as Nishapur had become one of the main centres for Ashᶜarite thought by the end of the tenth century, with such illustrious Shafiᶜite intellectuals to be found there as Abū Muhammad Ibn Fūrak (d. 1015)[78] and Abū Is'hāq Ibrāhīm al-Isfarāyinī (d. 1027).[79] Towards the middle of the eleventh century, Abū Bakr Ahmad b. Muhammad Ibn Fūrak (or al-Fūrakī, d. 1085) became the first Ashᶜarite author to mention Transoxanians, at about the same time that the Transoxanian divine, Abū Shakūr al-Sālimī, mentioned the Ashᶜarites. The main issues at stake now revolved around the eternity, or temporal nature, of the divine attributes of God's act, and also and especially on the need to determine whether or not God was creator as of all

78. *EI*², 'Ibn Fūrak' (W. M. Watt); Gimaret, 1985, pp. 185–218.
79. *EI*², 'al-Isfarāyinī' (W. Madelung).

eternity – a tenet to which the Transoxanians subscribed. None of the disputing parties, however, as yet so much as mentioned al-Māturīdī.

Mention of al-Māturīdī finally occurs with the third stage, towards the close of the eleventh century, as we learn from the writings of two Hanafite authors of this period, the judge of Samarkand Abu 'l-Yusr al-Bazdawī (d. 1099) and Abu 'l-Muᶜīn al-Nasafī (d. 1104). According to the first of these two writers, al-Māturīdī had argued against the Muᶜtazilites in favour of the eternity of God's attribute of creation, even before al-Ashᶜarī had taken up the intellectual struggle against them. The second writer has three Ashᶜarite theologians level attacks against the Transoxanian Hanafites, with one of these divines going so far as to brand what the Transoxanians were saying about the attribute of creation as a heresy which appeared in Transoxania after the Islamic year 400 (A.D. 1009–10).[80]

Moving towards a Maturidite scholasticism

As we have seen, detailed presentations of *kalām* only appear in Transoxania after the mid-ninth century. This was when Abū Shakūr al-Sālimī (active in the second half of the ninth century) wrote his detailed account of dogma, the *Kitāb al-Tamhīd fī bayān al-usūl* [Book of Introduction to the Elucidation of the Principles (of Religion)]. For his part, al-Bazdawī composed a treatise on dogma in 96 questions, the *Kitāb Usūl al-dīn* [Book of the Principles of Religion]. In general, however, the *qādī* (judge) more closely adhered to the tenets of the Bukharan divines, who on various points showed differences with al-Māturīdī's positions. Abu 'l-Yusr's more famous brother, Abu 'l-Hasan ᶜAlī al-Bazdawī (d. 1089), was the author of a *Kitāb al-Muyassar fī 'l-kalām* [Elementary Handbook for Dialectical Theology], a manuscript of which still survives.

The true renovator of the Samarkand school, however, was al-Nasafī. In his *Kitāb Tabsirat al-adilla* [Book of Instruction on Cogent Proofs], he deals, precisely, with cogent proofs in connection with *kalām* theology. His *Kitāb al-Tamhīd li-qawā'id al-tawhīd* [Introductory Work for the Rules Concerning Unity][81] found its commentator, a Hanafite thinker from Turkistan who studied in Bukhara and later taught in Baghdad, Damascus and Aleppo, Husām al-Dīn al-Sighnāqī (d. 1311).

An important role in spreading al-Māturīdī's dogmas was played by yet another al-Nasafī, Abū Hafs ᶜUmar (d. 1142), who stated his beliefs in his *ᶜAqā'id* [Articles of Belief]. These *ᶜAqā'id* came to serve as an annotated textbook for scholastic studies and were several times even turned into verse. The best known of their several commentaries is that by Saᶜd al-Dīn Masᶜūd al-Taftazānī (i.e. from Taftazan near Nasa in Khurasan, d. 1390), a disciple of

80. Rudolph, 1997*a*, pp. 356–9; 1997*b*, pp. 397–402.
81. Gilliot, 1989, no. 47; Rudolph, 1997*b*, pp. 399–402.

the Ashʿarite teacher ʿAdud al-Dīn al-Ījī (see below, p. 131) and his commentary in turn was covered with glosses and still more glosses; it remains in use to this day as a handbook for Maturidite theology.

The philosophical orientation chosen by the 'modern' practitioners of *kalām*, as this came to prevail in Ashʿarite theology by the beginning of the twelfth century, had at first no effect on the Maturidite school. It took al-Taftazānī to forge ties between Maturidite theology and philosophy. His familiarity with the doctrines of the philosophers often shows in his commentary on Abū Hafs al-Nasafī's *ʿAqā'id*, and another of his works, the *Kitāb al-Maqāsid* [Book of Aims], is entirely concerned with philosophical *kalām*.

Somewhat earlier, ʿAlī b. ʿUthmān al-Ūshī, writing *c.* 1173, had set an account of dogma to verse, *al-Lāmiyya fi 'l-tawhīd* [Poem Rhyming in the Letter *Lām* Concerning Unity], which again attracted its share of commentaries, including several notably in Persian and Turkish. In the same period, one Nūr al-Dīn Ahmad al-Sābūnī al-Bukhārī (d. 1184) wrote a treatise on *kalām*, while a certain Jalāl al-Dīn ʿUmar al-Hanafī, probably to be identified with the Bukharan judge and traditionist ʿUmar b. Muhammad al-Ansārī al-ʿAqīlī (d. 1200), wrote a *Kitāb al-Hādī fi ʿilm al-kalām* [Guidebook for the Science of Dialectical Theology].

Ashʿarite theology

Given the predominance of Hanafite, and Maturidite-Hanifite, theology in the areas of concern to us here, it will be readily understood why Ashʿarite theology should be discussed only afterwards. Moreover, as elsewhere in this section, we will have to probe beyond the limits of Central Asia and touch on Persia generally, and especially on Tabaristan and Khurasan. For in Persia, 'the Ashʿarite school moved even farther away from its traditionalist Hanbalite model, to serve the purposes of a theology of mediation'.[82] This is obvious in such a work as the *Kitāb Mushkil al-hadīth wa-bayānihi* [Book on Difficult Points in *Hadīth* and their Elucidation] by Ibn Fūrak in which he tries to mitigate through interpretation the starker anthropomorphic aspects of *hadīth*, although not going so far in this as the Muʿtazilites had done. Several of his other theological writings have been preserved, but others are lost, including a *Kitāb Ikhtilāf al-Ashʿarī wa 'l-Qalānisī* [Book of the Dispute between al-Ashʿarī and al-Qalānisī], the latter being a little-known theologian of the school of Ibn Kullāb (d. 854), who lived at least a generation before al-Ashʿarī.[83]

Muʿtazilite notions left an even stronger stamp on the thought of the

82. Madelung, 1987, p. 331.
83. Gimaret, 1989, pp. 227–62.

Khurasanian al-Isfarāyinī. He was one of three contemporary masters of Ashᶜarite thought, along with al-Bāqillānī (d. 1013) and Ibn Fūrak. Al-Isfarāyinī also taught in Nishapur, but only one or two of his works are extant.[84]

Far more important in the traditions of the Ashᶜarite school, however, was al-Isfarāyinī's contemporary, the Imām al-Haramayn (Religious Leader of the Two Holy Places), Abu 'l-Maᶜālī al-Juwaynī (d. 1085),[85] who was also favoured by the Seljuq vizier Nizām al-Mulk. Al-Juwaynī's bent was mostly conservative, with a proclaimed reliance on al-Bāqillānī. Unfortunately, we have only part of the text of his detailed account of *kalām*, the *Kitāb al-Shāmil* [Book of the All-Encompassing], but several other extant works of his are complete, including the *Kitāb al-Irshād ilā qawātiᶜ al-adilla fī usūl al-iᶜtiqād* [Book of Guidance to the Incisive Proofs Concerning the Principles of Belief]; an *ᶜAqīda Nizāmiyya* [Profession of Faith (dedicated to the vizier) Nizām al-Mulk], mainly a statement of belief; a *Kitāb Lumaᶜ al-adilla fi qawā'id ᶜaqā'id ahl al-sunna* [Book of the Flashes of Proof Concerning the Principles of the Doctrines of the People of the Sunna], setting forth his theological system (commentaries on it are extant); a *Kitāb Ghiyāth al-umam fī iltiyāth al-zulam* [Book of Helpful Rain for the Nations in the Confusion of their Darkness], again dedicated to the vizier Nizām al-Mulk,[86] especially concerned with the imamate; and finally, several further short treatises on *kalām*.

Al-Juwaynī's theology both summarizes and surpasses the 'method of the elders' so far as theologians of *kalām* were concerned. The 'method of the moderns' was brought in by al-Juwaynī's still more celebrated disciple, Abū Hāmid Muhammad al-Ghazālī, the Algazel of medieval Western scholars (1058–1111), born in Tus, and who taught both in Baghdad and in Nishapur. Followers of the 'method of the moderns' sought a new relationship with philosophy, especially with the kind of Islamized Aristotelianism elaborated by Ibn Sīnā (Avicenna, *c.* 980–1037) and his school. The exponents of the older type of *kalām* had not shirked debate and confrontation concerning the theological options upheld by the philosophers. But the refutations offered by the scholars of old-fashioned *kalām* had been rather summary, betraying a poor familiarity with the underlying, basic concepts on which the philosophers built. Al-Ghazālī, however, studied Ibn Sīnā's philosophy in depth and undertook to refute its heretical tenets on its own ground, in other words from the viewpoint of Islamic orthodoxy. But his own direct contribution to the production of *kalām*, whose value he sometimes assesses very negatively, is only represented by a rather insignificant and dogmatically conservative theological compendium, the *Kitāb al-Iqtisād fī 'l-iᶜtiqād* [Measured Book Concerning Belief]; nevertheless, given its systematic resort to syllogism, the work well reflected the new 'method of

84. Van Ess, 1966, pp. 335–6, 497.
85. Nagel, 1988; Gilliot, 1992, pp. 241–60.
86. Nagel, 1988, p. 277.

the moderns'. Its importance lies in al-Ghazālī's recommendation to his disciples that they apply themselves to mastering Aristotelian logic.[87]

As time passed, it quickly became obvious that interest thus aroused in philosophy among students of *kalām* could not stay restricted to logic alone, and other philosophical disciplines increasingly influenced dialectical theology. Soon it became impossible to deal seriously with *kalām* without a thorough grasp of Ibn Sīnā's philosophy. In fact, quite a few later theologians of *kalām*, in the wake and in the manner of al-Ghazālī, would in addition to their theological writings compose works pertaining to the field of philosophy alone. Nor was it unheard of for such theologians to reject, when writing theology, tenets which they themselves upheld when writing philosophy.

The link between *kalām* and philosophy is found again in another presentation of Ashᶜarite theology, the *Kitāb Nihāyat al-aqdām fī ᶜilm al-kalām* [Book of the Utmost Steps Concerning the Science of Dialectical Theology] by al-Shahrastānī, in whose Qur'anic commentary, as we have seen (see above, p. 114), there lurked Ismaᶜili ideas.

The theology of Fakhr al-Dīn al-Rāzī (see above, p. 112–13) was even further steeped in the legacy of philosophy. Without any doubt, al-Rāzī's works exerted the greatest influence on all later Ashᶜarite *kalām*. His main writings here are his *Kitāb al-Arbaᶜīn fī usūl al-dīn* [Book of the Forty Tenets Concerning the Principles of the Faith], a general presentation of dogma; and his *Muhassal afkār al-mutaqaddimīn wa 'l-muta'akhkhirīn min al-ᶜulamā' wa 'l-hukamā' wa 'l-mutakallimīn* [Gist of the Thoughts of the Ancients and Those of the Latter Day from amongst the Scholars, the Wise Ones and the Dogmatic Theologians], where he sets forth the teachings both of the theologians of *kalām* and of the philosophers.[88] The Shiᶜite philosopher Nasīr al-Dīn al-Tūsī (d. 1274) in turn critically glossed this second work of al-Rāzī in his own *Talkhīs al-muhassal* [Epitome of the Gist].

In the Ashᶜarite school, didactic handbooks were composed for the use of students of divinity, and then further completed with various commentaries and glosses. This type of writing is exemplified by the *Tawāliᶜ al-anwar min matāliᶜ al-anzār* [Rising Lights on the Horizon of Speculation] by al-Baydāwī, whom we have already encountered as a Qur'anic commentator (see above, p. 115). Another handbook which enjoyed even more widespread success was the *Kitāb al-Mawāqif fī ᶜilm al-kalām* [Book of Standpoints Concerning Dialectical Theology] by ᶜAdud al-Dīn al-Ījī (d. 1355), used to this day as a manual of Ashᶜarite *kalām* by advanced divinity students, along with comments by al-Sharīf al-Jurjānī and further glosses by the Indian Muslim scholar ᶜAbd al-Hakīm al-Siyālkūtī (d. 1657) and the Ottoman one, Hasan Chelebi al-Fanārī (d. 1481).

87. Ormsby, 1984.
88. For all his works, see Anawati, 1962, pp. 191–234.

4

LEGAL, POLITICAL AND HISTORICAL SCIENCES

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Part One

LEGAL AND POLITICAL SCIENCES IN THE EASTERN IRANIAN WORLD AND CENTRAL ASIA IN THE PRE-MONGOL PERIOD

(C. E. Bosworth)

The legal sciences

The development of studies in Islamic tradition, *hadīth*, has been delineated in Chapter Three, Part One, and the oft-quoted observation made that, of the six *hadīth* collections considered as canonical by the Sunnis, four of their authors came from Khurasan (or Transoxania) and the other two from adjacent regions of the Iranian world (Abū Dāwūd al-Sijistānī from Sistan and Ibn Māja from Qazvin in northern Iran) (see above, pp. 93–4). The study of *hadīth* began comparatively late in the Iranian East, a key figure here being ᶜAbdallāh b. Mubārak (d. 797), who by himself and through his pupils like Abū Yaᶜqūb Is'hāq, called Ibn Rāhawayh (d. 852), did much to spread this discipline as far as Merv and Nishapur.

A few preliminary words on *hadīth* are necessary for our purposes from the fact that many of the sections in *hadīth* collections, from the time of Mālik b. Anas' (d. 795) *Muwatta'* [The Clearly Trodden Way], were essentially organized round legal topics, with their headings subsequently taken over directly into early law books, showing that such *hadīth* collections were proto-law books.[1] Given the florescence of *hadīth* studies in the East after this initial

1. Mottahedeh, 1997, pp. 66–7.

delay, legal studies proper now began to develop there, eventually to be based in particular in the new *madrasas* (colleges for higher religious and other studies), often founded for a particular, eminent legal scholar and the specific study of his *madh'hab* (law school). Hence the geographer al-Maqdisī was to observe, at the end of the tenth century, that Khurasan was 'the region most abundant in learning (*ᶜilm*, probably referring essentially to *hadīth* studies) and law (*fiqh*)'.[2]

The two orthodox Sunni law schools which flourished in Khurasan and the East during the first six centuries or so of Islam were the Hanafite and the Shafiᶜite, so completely dominant that they are often called in the sources *al-farīqān* ('the two sects') *par excellence*.[3] Hanafism appeared early in Khurasan and had connections with the moderate members of the Murji'ite trend of thought which found expression in the revolt in Khurasan and Transoxania in the early eighth century led by al-Hārith b. Surayj (see Volume IV, Part One, Chapters 1 and 2). Hence it was not surprising that Balkh, one of the epicentres of al-Hārith's movement, became an early bastion of eastern Hanafism, with its first Hanafite *qādī* (judge) appointed in 759 while Abū Hanīfa was himself still alive. The Murji'ite doctrines taken over by Abū Hanīfa had relevance for the legal situation of the numerous recent converts to Islam of Transoxania and the upper Oxus (Amu Darya) lands of Tukharistan, the ancient Bactria. (It is reported that Abū Hanīfa held that a Muslim in the land of polytheism, the *dār al-shirk*, could be ignorant of the Qur'an and the religious duties laid down in the *sharīᶜa* yet still be accounted a *mu'min*, or believer, although this definition of such converts' legal status did not imply moral laxity; Abū Hanīfa held that every effort had to be made to teach such persons the obligations and prescriptions of the Islamic faith.) Hence the appeal of Hanafism there is not surprising, and by the ninth century Transoxania and Tukharistan had become overwhelmingly Hanafite in *madh'hab*, especially as Arab settlers there were few and the indigenous converts to Islam found attractive the liberal definition of faith by that law school, so that Hanafism took on a populist character as the egalitarian form of Islam of *al-sawād al-aᶜzam* ('the great mass of people').[4] In this respect, Hanafism was the antithesis of the Hanbalite law school, whose founder Ibn Hanbal emphasized the permanent superiority of the Arab race as the one which had nurtured the Prophet Muhammad and the pure, pristine Islam of the first community.[5]

Shafiᶜism, the law school named after its eponym, the Palestinian Muhammad al-Shāfiᶜī (d. 820), stressed the paramountcy of *hadīth*, and in particular, traditions traceable back to Muhammad, as the foundation of law; hence

2. *Ahsan al-taqāsīm*, cited in Mottahedeh, 1997, p. 66.
3. Madelung, 1988, p. 26.
4. Ibid., pp. 18–22.
5. Ibid., pp. 22–4.

its followers were often termed the *as'hāb al-hadīth* ('partisans of tradition'), as against the *as'hāb al-ra'y* ('partisans of speculative opinion'), a title applied (not wholly accurately) to the Hanafites (see further, Chapter 3, Part Two, above). In Khurasan, Shafiᶜism obtained a strong footing and in the early eleventh century, the Shafiᶜites of Nishapur, under the influence of Abū Bakr Ibn Fūrak (d. 1015) and Abū Is'hāq al-Isfarā'inī (d. 1027), adopted the Ashᶜarite system of theology, so that henceforth, the Shafiᶜite *madh'hab* became predominantly Ashᶜarite in theology. During the tenth century, the Hanafites and Shafiᶜites were probably roughly balanced in Khurasan. In Transoxania, however, it was only in the middle Syr Darya (Jaxartes) region, in the neighbourhood of Chach and Ilaq, that Shafiᶜism established for itself an enclave, largely because of the teaching and influence of the prominent local Shafiᶜite scholar Abū Bakr Muhammad al-Qaffāl (d. 976).[6] Elsewhere in Transoxania, Tukharistan and the eastern fringes of Afghanistan, Hanafism was dominant, and it was this dominance which later provided the springboard for the wholesale adoption of Hanafism by the Turks of Central Asia, the Afghans and the Muslims of the Indian subcontinent.

In Transoxania and Semirechye, the Karakhanids favoured Hanafism, although this did not prevent them at times clashing on social or political issues, if not on theologico-legal ones, with such powerful local lines of Hanafite scholars in the Transoxanian cities as the *sudūr* (eminences, prominent leaders; sing. *sadr*) of the Burhān family in Bukhara. These *sudūr* preserved their temporal and spiritual authority into the period of domination of Transoxania by the Buddhist Kara Khitay, and a similar influence was carried on through the Mongol period by another Bukharan family, the Mahbūbis, still notable in local affairs when the Moroccan traveller Ibn Battūta visited Bukhara in 1333.[7]

Under the early Ghaznavids, and then under the Seljuqs, both Hanafism and Shafiᶜism flourished in the provincial capital Nishapur, together with the pietistic sect of the Karramites (see on this, above, Chapter 3, Part Two, pp.107, 123–4). The Ghaznavid sultans and their officials tended to favour the Hanafites. Mahmūd of Ghazna's brother Nasr, governor of Khurasan, in 1000 founded the Sāᶜidiyya *madrasa* in Nishapur, while the sultan himself often employed members from leading families of Hanafite *faqīhs* (Islamic legal experts) in Nishapur for diplomatic missions.[8] The patronage of the Ghaznavids in their more eastern provinces had its effects on the legal complexion of Islam in eastern Afghanistan and the Indian plain, where Ghaznavid officials and legal scholars brought Hanafism to north and central India to the exclusion of all other *madh'habs*. This process was continued by the Ghurids, even though Sultan Ghiyāth al-Dīn Muhammad (1163–1203) had personally favoured the Shafiᶜite

6. Madelung, 1988, pp. 28–9.
7. *EIr*, Vol. 1, 1985, pp. 753–4, 'Āl-e Borhān' (C. E. Bosworth).
8. Bulliet, 1972, pp. 35 et seq.; Bosworth, 1973, pp. 173–8.

scholar Fakhr al-Dīn al-Rāzī (see above, Chapter 3, Part Two, pp. 112–13);[9] the weight of Hanafite penetration proved overwhelming in Muslim India.

For Nishapur, we are particularly informed about the Hanafite and Shafiᶜite lawyers and theologians, and the *madrasa*s founded there and in other Khurasanian towns like Merv and Sarakhs for the notable scholars among them, making eleventh-century Khurasan a powerhouse of legal scholarship. Under the Seljuqs, such scholars of Nishapur as the Shafiᶜite Abū Muhammad al-Juwaynī (d. 1047) and his son, the Imām al-Haramayn Abu 'l-Maᶜālī (d. 1085), passed on their learning to their student, the great al-Ghazālī (1058–1111). The vizier Nizām al-Mulk (d. 1092) made a strenuous effort to restore the influence of Shafiᶜism in Nishapur through his appointment of Shafiᶜite judges, preachers and so on, and above all, his foundation of a fresh wave of *madrasas*, his Nizāmiyyas, several of which were in the eastern Iranian lands; one result of this was to prolong the tensions within Nishapur and other cities between the adherents of the two *madh'hab*s, often resulting in rioting and violence.[10]

It has been noted in more than one place in the present volume that, from 1200 onwards, the springs of original thought and learning tended to dry up in the eastern Islamic lands, as elsewhere, with a resultant rigidification of knowledge, and legal scholarship was not exempt from this process. Here began, as in other branches of learning, an age of encyclopedias, summations of knowledge, commentaries and supercommentaries. Al-Ghazālī's first training had been as a lawyer, and in his numerous works on *fiqh* he was able to make original contributions, as in his *Kitāb al-Basīt fi 'l-furūᶜ* [Simple Work on the Derivative Developments in Law], his *Kitāb al-Wajīz* [Concise Book] and his *Kitāb al-Mustasfā min ᶜilm al-usūl* [Select Book on the Science of Basic Principles in Law].[11]

Subsequent legal scholars were more noted as writers of compendia of legal information than as original authors. As an example, one may cite the Marghīnānīs, an eminent family of Hanafite lawyers of the twelfth and thirteenth centuries from Marghinan in Ferghana. From among them, Burhān al-Dīn Abu 'l-Hasan ᶜAlī (d. 1197) wrote a compendium of law, the *Bidāyat al-mubtadī* [Preliminary Work for the One Embarking (on the Study of Law)] based on two earlier, classic legal works, *al-Jāmiᶜ al-saghīr* [The Smaller Collection] of Muhammad al-Shaybānī (d. 803 or 805) and the *Mukhtasar* [Epitome] of Abu 'l-Hasan Ahmad al-Qudūrī (d. 1037). On his own work he wrote a commentary in eight volumes, the *Kifāyat al-muntahā* [The Satisfactory Achievement of the Goal], but on completing it, he found it too diffuse and unwieldy, and hence produced a shorter commentary, the *Hidāya* [Guidance],

9. Bosworth, 1961, pp. 131–2.
10. Bulliet, 1972, pp. 31–46; Bosworth, 1973, pp. 171 et seq.
11. *EI*², 'al-Ghazālī' (W. M. Watt); Brockelmann, 1937–49, Vol. 1, pp. 542–4; Suppl., Vol. 1, pp. 752–4.

which was to have a wide success all over the Islamic East; it attracted, from the author's own time onwards, numerous supercommentaries, and in 1791 an English translation was made for the use of British officials in India.[12] Also popular was the *Kitāb al-Muntakhab fī usūl al-madh'hab* [Select Book on the Basic Roots of the (Hanafite) Legal School] by another Ferghanan legal scholar, Husām al-Dīn Muhammad al-Akhsīkatī (d. 1247), familiarly known as the *Husāmī*, which again attracted several commentaries.[13]

Political science

The background

Aristotle in his *Nicomachaean Ethics* defined politics, Plato's 'royal art', as the most authoritative of the sciences, aiming at the highest good which man desires for its own sake in his quest for happiness. Medieval thinkers, Jewish, Christian and Muslim alike, pictured this happiness, the Islamic *saʿāda*, in relationship to God, viewing the knowledge and love of God as its supreme goal, to be attained within a society united by a common faith in God and governed by a divinely revealed law; on such questions as these, Maimonides, Thomas Aquinas and Ibn Rushd (Averroes) were united.[14]

Within Islam, this quest involved questions of practical politics, the business of ruling over the various classes making up the body politic (the *ʿilm al-siyāsa*, science of government), and questions of the ethical bases of that rule, the duties incumbent on all grades of human society, in the first place towards God and, following on from that, towards each other (the *ʿilm al-akhlāq*, moral and ethical sciences). It was these latter theoretical, ethical topics, rather than practical politics, which concerned the first great Platonist philosopher in Islam, Abū Nasr Muhammad al-Fārābī (Alfarabius) (d. 950), who was born at Farab in Turkistan on the lower Syr Darya but who worked mainly in Syria and Iraq. Hence his great works concerning questions of human behaviour and society, the *Kitāb fī Mabādi' ārā' ahl al-madīna al-fādila* [Principles of the Opinions of the Citizens of the Ideal State], the *Kitāb al-Siyāsa al-madaniyya* [On Political Government] and the *Kitāb Tahsīl al-saʿāda* [On the Attainment of Happiness], deal primarily with philosophical and ethical questions rather than the setting forth of any political programme.[15]

12. Brockelmann, 1937–49, Vol. 1, pp. 466–9; Suppl., Vol. 1, pp. 644–9; *EI*[2], 'al-Marghīnānī' (W. Heffening).
13. Brockelmann, 1937–49, Vol. 1, p. 474; Suppl., Vol. 1, p. 654.
14. See E. I. J. Rosenthal, 1968, pp. 13–15.
15. Ibid., pp. 122–42; al-Fārābī, 1985; *EI*[2], 'al-Fārābī' (R. Walzer).

Much of what became political science in medieval Islam was nevertheless very much of a practical bent. At its core lay the rule of the caliph-imam and his deputies as God's instruments for carrying out the legacy of the Prophet Muhammad in securing a God-directed society, but it also drew quite extensively on Greek ethics, as is particularly clear in the case of al-Fārābī, and on the Persian tradition of kingly power and statecraft, with its advice to rulers (*andarz, pand*) to be expounded at length in the 'Mirrors for Princes' literature (see below). Islamic political science thus had some points of contact with historiography. In both Arabic and Persian literatures, material of a 'Mirrors for Princes' nature appears in historical works (for example, as an extensive prolegomenon, 'On Matters Concerning the Sultan and the Methods for Ruling of Kings', which Ibn al-Tiqtaqā prefixed to his history of the caliphate, the *Kitāb al-Fakhrī*, written in 1302 for a local ruler, Fakhr al-Dīn ʿĪsā of Mosul), with this literary genre drawing upon the lives of ancient Persian kings and Islamic rulers alike for telling examples of moral and political conduct. The approach here was strictly practical; not until we come to the North African thinker and historian Ibn Khaldūn (d. 1406) do we have any theorizing on political conduct, and Ibn Khaldūn remained for quite a while a unique figure.[16]

The question of the caliphate and the sultanate

As the unity of the ʿAbbasid caliphate began to crumble in the later ninth century (see Volume IV, Part One, Chapter 2, pp. 56–9) and lines of autonomous governors or, in effect, independent rulers appeared in regions of the East like Khurasan, Sistan and Transoxania, the question arose of the relationship between the caliph-imam (still morally and religiously the head of Sunni Islam even if his actual political authority was now circumscribed) and the provincial powers. Such lines as the Tahirid governors in Khurasan still acknowledged the ultimate authority of the caliph and sent tribute to Baghdad, although a more remote dynasty like the Samanids, with their capital in Transoxania, no longer felt the obligation to send such tribute. For these rulers, the 'caliphal fiction', i.e. that all executive power derived from an act of delegation by the caliph, nevertheless still held good. The Shiʿite Buyid amirs of northern and western Persia had an uneasy relationship with the ʿAbbasids, but the advent of Toghrïl Beg and his Seljuqs in the mid-eleventh century meant that a *rapprochement* between the two Sunni potentates, caliph and sultan, was now possible. This needed a basis in constitutional theory, so that the question of the relationship and balance between the ʿAbbasids and the Seljuq sultans, the latter now effective holders of temporal power in the Islamic East, arose.[17]

16. E. I. J. Rosenthal, 1968, pp. 115–16.
17. See for the background here, Arnold, 1924, pp. 42–81.

In Khurasan, the task was undertaken in the later eleventh century by Abu 'l-Maᶜālī al-Juwaynī and Abū Hāmid al-Ghazālī (see on these two figures, above, pp. 130–1). The first of these was concerned to assert, against the Shiᶜite doctrine that ᶜAli and his progeny had been divinely designated as both spiritual and secular heads of the community, the supreme importance of *ijmāᶜ*, the consensus of the (Sunni) community, in choosing and validating the caliph-imam, the defender and protector of the community. He was also practical enough to recognize that the political unity of the *dār al-Islām* was now gone and that two simultaneous imams were possible, provided that they were in widely separated areas.[18]

Al-Ghazālī's writings range over a wide field of constitutional and ethical questions, including a special concern to refute the claims to authority of the Shiᶜites and such of their representatives as the Fatimid dynasty in Egypt and Syria who, he asserted, had usurped the real caliph-imam's spiritual and temporal authority. Al-Ghazālī wished, therefore, to reaffirm the caliph's position as head of the Islamic *jamāᶜa* (community) and to incorporate the sultanate of his Seljuq patrons into the ideal structure of Islamic government. Hence he stressed authority in religion, right belief, and the personal loyalty of the sultan to the caliph as ideals to be pursued. *Fitna* (civil disorder) and anarchy were to be avoided at all costs, even if this meant living under an unjust caliph or sultan.

In a series of Arabic works, from his *Kitāb al-Mustazhirī* (written for the caliph al-Mustazhir) to his *Kitāb al-Mustasfā min ᶜilm al-usūl*, his last great work, completed in 1109, al-Ghazālī examined the relationship between *dīn* (religion) and the *sharīᶜa* (religious law) on the one hand, and *hukm* (temporal jurisdiction) and *saltana* (power) on the other. He asserted that the office of caliph-imam was necessary both by revelation and by reason, and that the *sharīᶜa* required an executive power to enforce its provisions; this last was provided by the sultanate, whose authority, however, was conditional on the sultan's obedience to the caliph-imam, who appointed him.[19] Al-Ghazālī was to elaborate the practical duties of the sultan, as opposed to the theoretical bases of the constitutional relationship between him and the caliph-imam, in a 'Mirror for Princes' composed in Persian, which will be considered below.

18. Lambton, 1981, pp. 103–7. For the importance here of *ijmāᶜ*, see Watt, 1968, pp. 90–8.
19. E. I. J. Rosenthal, 1968, pp. 38–43; Laoust, 1970, pp. 75–133, 152–82, 191–364; Lambton, 1981, pp. 107–17; Hillenbrand, 1988, pp. 81–91.

THE 'MIRRORS FOR PRINCES' LITERATURE

At the side of treatises by *'ulamā'* (scholars of the religious sciences; sing. *ʿālim*) like al-Juwaynī and al-Ghazālī dealing with basic constitutional principles in Islam, there had existed almost since the outset of Islam a minor genre of literature containing aphorisms in the testaments of rulers for their successors, practical advice for rulers and their ministers, how these last two groups should comport themselves and what policies they should pursue, all these constituting the *ʿilm al-siyāsa* ('science of government'), *tadbīr al-mulūk* ('how kings should manage their affairs') or *nasīhat al-mulūk* ('advice and counsels for kings'). The genre was indeed an ancient Near Eastern one, with elements of it appearing from ancient Egyptian times onwards. The early Islamic 'Mirrors' incorporated strands from earlier cultures such as the classical Greek and even the Indian one, but above all, they continued and drew upon the Sasanian Persian traditions of kingship, seen in the frequent references in this literature to wise monarchs like Ardashīr I, Bahrām V Chūbīn, Khusraw I Anūshirwān and Khusraw II Abarwīz and to their sage ministers like Buzurjmihr, and the many anecdotes recounted about them.[20]

There was thus a long tradition of such writing in the Iranian world. The surviving examples of it from the period 750–1500 are especially connected with Khurasan, the Caspian region and Central Asia. This may well not be fortuitous: it may reflect the fact that, with the constituting of the Seljuq empire, whose running was largely staffed by viziers, secretaries and officials from Khurasan, the centre of religious and cultural gravity in the orthodox Sunni world had shifted eastwards and the new generation of rulers, comprising sultans, amirs and Khans, exercising an essentially secular rule, required manuals and models of conduct which took into account the new conditions.

The famed littérateur of Nishapur, Abū Mansūr ʿAbd al-Malik al-Thaʿālibī (d. 1038), wrote at the court of the Ma'munid Khwarazm Shah in Gurganj an Arabic *Kitāb Adāb al-mulūk al-Khwārazmshāhī* [Book for the Khwarazm Shah on the Manners of Kings].[21] The Ziyarid prince of Gurgan and Tabaristan, Kay Kāwūs b. Iskandar, composed in 1082–3 his *Qābūs-nāma* [Book for Qābūs] (named after his grandfather, the Amir Qābūs b. Wushmagīr, whom the author regarded as the epitome of ruthlessness and the exercise of *realpolitik*). Hence in his sections on ruling, the employment of ministers and the arts of war, Kay Kāwūs recommends that one should have an eye to the claims of God but pursue worldly ends with a single-minded concentration on one's own interests.[22]

20. See on the genre in general, Inostrantsev, 1918, pp. 37 et seq.; Richter, 1932; Bosworth, 1990, pp. 165–7; 1993.
21. Bosworth, 1993.
22. Kay Kāwūs b. Iskandar, 1951.

As noted above, al-Ghazālī complemented his consideration of the religious and constitutional issues involved in the dual exercise of authority by caliph and sultan by writing a 'Mirror for Princes', the *Nasīhat al-mulūk* [Advice for Kings], apparently utilizing material on government and the exercise of power which he had already set forth in his Persian *Kīmiyā-yi saʿādat* [The Alchemy of Happiness], largely but not wholly an epitome of his Arabic *summa*, the *Ihyā' ʿulūm al-dīn* [Revivification of the Religious Sciences] (see on the author, above, Chapter 1, Part One). In his *Nasīha*, al-Ghazālī dealt with the more practical aspects of kingship, or rather, it seems that he wrote the first part of the book on the ideal of the godly ruler and how he should in practice exercise his authority for a Seljuq prince, Muhammad b. Malik Shāh or his brother Sanjar, but that the second part is by an unknown Persian author of a generation or so later writing very much within the old Persian ethical and political tradition. At all events, the work. endowed with the prestige of al-Ghazālī's name, proved popular (especially through a somewhat later Arabic translation) for several centuries and well into Ottoman Turkish times.[23]

The supreme example of the 'Mirrors for Princes' genre in Persian is, nevertheless, without doubt the *Siyāsat-nāma* [Book of Government], or *Siyar al-mulūk* [Conduct of Kings], by the great Seljuq vizier Nizām al-Mulk, a native of Tus in Khurasan. He combined the acuity and learning of a Shafiʿite lawyer and an Ashʿarite theologian (whose name in this regard would be immortalized in the Nizāmiyya colleges which he founded; see above, Chapter 1, Part One, p. 37) with an immense breadth of practical experience as administrator of Khurasan and then vizier to two Seljuq sultans, a career extending over 30 years. Written towards the end of its author's life, the *Siyāsat-nāma* thus contains the distilled wisdom accumulated during a long career as a statesman. In some respects it is an hortatory work, setting forth a political programme for his Turkish masters, who were fresh to the Perso-Islamic tradition of ruling and were still rooted to some extent in the Turkish tribal past; the Seljuqs were to heed the examples both of the ancient Persian kings and of Islamic despots like Mahmūd of Ghazna. The central theme, however, is the divinely ordained authority of the ruler, who holds his power in trust from God, with a consequent duty to ensure that true, orthodox religion prevails; conversely, subjects, the *raʿiyya* ('sheep driven to pasture'), owe complete obedience to the ruler, paying taxes in return for protection. Nizām al-Mulk was in this respect restating the old Persian concept of the ruler's authoritarian, in practice unfettered, power, even when theoretically tempered with the Islamic requirement that the ruler should conform to the *sharīʿa* and the *sunna*.[24]

23. Al-Ghazali, 1964; Laoust, 1970, pp. 144–52; Lambton, 1981, pp. 117–26; Hillenbrand, 1988, pp. 91–2; Lambton, 1988, pp. 97–8.
24. Nizām al-Mulk, 1978; Lambton, 1984, pp. 55–6.

CENTRAL ASIA

These governmental notions continued to permeate the subsequent political development of the eastern Islamic lands, and in the eleventh century, the one which produced the classic Persian 'Mirrors', had already begun to spread into Central Asia. Yūsuf Khāss Hājib of Balasaghun in fact presented his long didactic poem in Karakhanid Turkic, the *Kutadghu bilig* [Knowledge which Brings Happiness], to a Karakhanid prince in Kashghar some years before Kay Kāwūs, Nizām al-Mulk and al-Ghazālī wrote. The poem includes elements of Turkish tribal lore and practice, but its central emphasis is firmly in the Islamic pattern of the enlightened ruler, whose firm exercise of power conduces to the happiness of his subjects, and it even includes perceptibly Sufi motifs (see further on the *Kutadghu bilig*, below, pp. 334, 380–1).[25] Yet perhaps because of the decline and disappearance of the Karakhanids in face of the Mongol cataclysm, the lasting influence of the *Kutadghu bilig* within Central Asia and the steppes was small, compared to the enduring success which the Persian 'Mirrors' enjoyed, although copies of it apparently circulated up to Timurid times. It would in fact be long before incoming steppe peoples like the Mongols and fresh waves of Turks from Inner Asia threw off their ancestral, tribal and patrimonial conceptions of rule over mobile, nomadic peoples in favour of the Perso-Islamic idea of the sole despotic ruler over a territorial state, only fully developed in the later Khanates of Bukhara, Khiva and Kokand.

Part Two

ARABIC, PERSIAN AND TURKISH HISTORIOGRAPHY IN THE EASTERN IRANIAN WORLD

(C. E. Bosworth)

The pre-Mongol period

Islamic historical writing in the first two centuries of our period (at this time, entirely in the Arabic language) is dominated by the figure of Abū Jaᶜfar Muhammad al-Tabarī (d. 923), whose *Ta'rīkh al-rusul wa 'l-mulūk* [History of Prophets and Kings] deals with universal history, as it was known to the Muslims, and carries the history of the Islamic caliphate up to 915. Although al-Tabarī's *nisba* (gentilic name) indicates a family origin from the Caspian province of Tabaristan (the later Mazandaran), he had settled in Baghdad and

25. Yūsuf Khāss Hājib, 1983, Introduction.

had composed his history there. Hence although his sources included the ancient Persian and Sasanian royal annals, the *Khwadāy-nāmag* [Book of Lords] (used in an Arabic version made from the Pahlavi original in late Umayyad times), he expressed essentially the viewpoint of someone writing in the heartland of the caliphate, Iraq.

The early Islamic conquests in Khurasan and Central Asia are described, often in considerable detail, and draw upon, among other things, the tribal traditions of the Arab warriors involved. An episode like the revolt of the Qarinid ruler Māzyār in the Caspian lands of the mid-ninth century is treated in great detail, yet the amount of information on the Iranian lines of governors and rulers who arose out of the weakening of caliphal authority, such as the Tahirids, Samanids and Saffarids (see Volume IV, Part One, Chapters 1, 2 and 4), is only modest; it was events in the capitals Baghdad and Samarra in Iraq, and those in south-western Persia, like the Zanj revolt of the later ninth century, which really concerned him. Nor did al-Tabarī's numerous continuators, running through the Sābi' family of Harran and Baghdad up to the twelfth-century historian Muhammad al-Hamadhānī or Hamdānī, depart from this concentration on events at the centre of the ᶜAbbasid caliphate.[26] The Persian-language epitome of al-Tabarī's original Arabic history, made in 976 by the Samanid vizier Abū ᶜAlī Muhammad Balᶜamī, added a few amplifications from earlier Persian history but did not take the opportunity to add new subject-matter on the history of Khurasan and Central Asia during the previous 60 years.[27]

There does not seem to have been any tradition of historiography with a wider sweep in those eastern Islamic lands until the later tenth century and after; until that time, and for a good while to come, the western Iranian lands, ruled by the Buyids, were far more significant.[28] We only know of one historian of stature from the Samanid period, Abū ᶜAlī Husayn al-Sallāmī, who was possibly in the service of the local amirs of Chaghaniyan on the upper Oxus and who wrote for a wider stage than the local historians of the region (see below, for these). In *c.* 950 he wrote in Arabic his *Tārīkh Wulāt Khurāsān* [History of the Governors of Khurasan], lost soon after the Mongol invasions but extensively cited (and independently of each other) by the early Ghaznavid general historian Abū Saᶜīd ᶜAbd al-Hayy Gardīzī (wrote *c.* 1050, see below) and by the thirteenth-century Mesopotamian annalist ᶜIzz al-Dīn Ibn al-Athīr in his *Kitāb al-Kāmil fi 'l-tawārīkh* [Perfect Book Concerning History]. We accordingly derive much of our knowledge of the Tahirids, the Samanids and the Saffarids from this last, who also drew on continuations of al-Sallāmī's work

26. Margoliouth, 1930, pp. 110–12; Barthold, 1968, pp. 25–6; F. Rosenthal, 1968, pp. 71–2, 81–3, 134–5; 1989, General Introduction, pp. 10 et seq., 130–64; *EI*², 'al-Tabarī, Abū D̲jaᶜfar Muhammad b. D̲jarīr' (C. E. Bosworth).
27. Storey, 1927–53, pp. 61–5; Barthold, 1968, p. 10.
28. Barthold, 1968, pp. 25–6.

so that his chronicle, though compiled in distant Mosul, is a major source for the history of such subsequent eastern dynasties as the Ghaznavids, the Seljuqs, the Khwarazm Shahs and the Ghurids (see on these Volume IV, Part One, Chapters 5, 7 and 8).[29]

The Samanid court of Bukhara emerged in the second part of the tenth century as a centre for the nascent New Persian literature: at first used for lyric and epic poetry, the language gradually evolved into a flexible medium for historical and scientific prose (see below, Chapters 13 and 14).[30] But, as E. G. Browne noted, Arabic still retained immense prestige as the language of scholarship *par excellence*.[31] It was in a florid, later to be much admired and imitated, Arabic prose style that Abū Nasr Muhammad al-ᶜUtbī wrote his special history of the Ghaznavid dynasty's founder Sebüktegin and Mahmūd, his *al-Ta'rīkh al-Yamīnī* (from Mahmūd's favoured honorific title, Yamīn al-Dawla, 'Right Hand of the State') shortly after 1020. And it was in Arabic that Abū Rayhān Muhammad al-Bīrūnī (973–1048) wrote his great work on chronology, calendars and history, *al-Āthār al-bāqiya* [The Remaining Traces (of Past Ages)], plus a history of his native province, Khwarazm, the *Kitāb al-Musāmarāt fī akhbār Khwārazm* [Book of Night Conversations Concerning the History of Khwarazm], though this is only known to us from the use made of it in the Persian work of Abu 'l-Fadl Bayhaqī (see below).[32]

In fact, by the middle of the eleventh century, Arabic began to yield to Persian as the language for historical writing. For the early Ghaznavids, this process is seen in the work of Gardīzī alluded to above, the *Kitāb Zayn al-akhbār* [Ornament of Histories], and the highly detailed, almost day-to-day account of events at the court of Sultan Masᶜūd I and in the Ghaznavid empire at large, the *Tārīkh-i Masᶜūdī*, this being all that has survived of what must have been an immense work, the *Mujalladāt* [Volumes], covering Ghaznavid history up to 1059. It is especially valuable as marking a departure from the bald, impersonal annalistic recording of events by many historians, for it gives a revealing picture of the workings of the central and provincial administrations and the personalities involved that is almost unique in medieval Islam and led one nineteenth-century British scholar to compare Abu 'l-Fadl Bayhaqī with the seventeenth-century English secretary to the navy and intimate diarist Samuel Pepys.[33]

Most of these works might be described as macro-history, ranging over the entire course of human history or covering whole dynasties or empires and

29. Barthold, 1968, pp. 2–3, 10–11, 21; Bosworth, 1994, pp. 19–21; *EI*², 'al-Sallāmī' (C. E. Bosworth).
30. Barthold, 1968, pp. 9–16.
31. Browne, 1908, pp. 365–6.
32. Bosworth, 1963, pp. 5–7, 14–15.
33. Ibid., pp. 8–14; Barthold, 1968, pp. 12–13, 20–4.

extensive regions. But it is a so far unexplained fact of history that the eastern Iranian world, Khurasan, Sistan and Transoxania, also saw in these times the development of a rich genre of local history writing, originally mainly in Arabic but increasingly in Persian. The cities, towns and districts involved in this process actually extended westwards and southwards through Persia proper to Qum, Isfahan, Shiraz, Yazd and Kirman, with a particularly rich concentration on the petty dynasties and principalities of the Caspian coastlands and the Elburz mountains interior, but Khurasan and Transoxania are especially well represented here. The genre seems to have had its origin in the recording of events of theological rather than of secular significance: the settlement in a town or district of *sayyids* (descendants of the Prophet Muhammad's family), believed to retain a unique charisma from their illustrious ancestry; and the recording of the biographies, scholarly achievements and miracles of lines of notable *ᶜulamā'* and *faqīhs*, and, at a later stage, of Sufi *shaykhs*.[34]

The surviving histories of Nishapur are very much of this biographical nature, beginning with the voluminous work of Abū ᶜAbdallāh Muhammad al-Hākim Ibn al-Bayyiᶜ (d. 1014), which attracted several continuators and epitomizers. The hard historical information which can be extracted from these works on the scholars of Nishapur is disappointingly meagre.[35] However, this is far from the case with the *Tārīkh-i Bukhārā* [History of Bukhara], written originally in Arabic for the Samanid amir Nūh I b. Nasr II in 944 by a local author, Abū Bakr Muhammad Narshakhī. It not only describes the coming of Islam to the city and its subsequent political and dynastic history but also dwells on Bukhara's geographic and topographic features plus its special products, reflecting what becomes a constant feature of these local histories: an exposition of the *manāqib* and *fadā'il* (merits and excellences) of the author's town or region and its *khasā'is* and *manāfiᶜ* (special products and beneficial features).

Narshakhī's work clearly reflected a growing sense of local pride and patriotism, for it was continued by various hands up to the Mongol invasions, being known to us at the present time in a Persian version;[36] from a fact like this, observable also in regard to the extant Persian versions of local histories originally written in Arabic for the western Persian towns of Qum and Isfahan, it would appear that, as time went on, literacy in Arabic decreased and there arose a popular demand for Persian versions (in the case of Isfahan, both Arabic and Persian versions survive). At nearby Samarkand, one Abū Saᶜīd ᶜAbd

34. For the genre of local histories in general, and the Iranian world in particular, see F. Rosenthal, 1968, pp. 150 et seq., 160–2; Bosworth, 1992, pp. 394–5. The local histories of the Iranian world and of Central Asia will be the subject of a multi-authored volume edited by Jürgen Paul, to appear in a special issue of *Iranian Studies* in the year 2000.

35. Frye, 1950–55, pp. 405–20; Lambton, 1962, pp. 143–5; Barthold, 1968, pp. 16–17; Bulliet, 1972, pp. xi–xii.

36. Storey, 1927–53, pp. 369–71, 1300; Frye, 1954; Barthold, 1968, pp. 13–15.

al-Rahmān al-Idrīsī (d. 1015) wrote in Arabic a local history of this great Transoxanian city, continued up to the twelfth century by the well-known theologian Abū Hafs ʿUmar Nasafī and known as the *Kitāb al-Qand fī ta'rīkh Samarqand* [Book of the Sugar-loaf Concerning the History of Samarkand] or simply as the *Qandiyya*, now only known to us in a Persian abridgement. As in the case of Bukhara, there is information on the pre-Islamic period, the Arab conquest and the buildings and irrigation system of the city, although the greater part of the extant book concentrates on the *ʿulamā'* and holy men of Samarkand.[37]

Further south, the region of Sistan, straddling the border of modern Iran and Afghanistan, is known to us in remarkable detail from the survival of two extensive and often highly detailed local histories in Persian. The first, simply called the *Tārīkh-i Sīstān*, is by an unknown author who wrote *c.* 1062 and dealt with the epic, legendary history of the province and then its Islamic one; one, or possibly two, equally unknown continuator(s) brought the story, much more perfunctorily, up to 1326, when Sistan was being ruled by local Maliks in the shadow of more powerful neighbours like the Kart princes of Herat and the Mongol Il Khanid sultans. For the later history of these Maliks, up to the Safavid annexation of Sistan in the mid-sixteenth century, we have a second local history, the *Ihyā' al-mulūk* [Revivification of the Kings] by Malik Shāh Husayn, himself a member of the ruling stratum.[38]

For Khurasan proper, the small town of Bayhaq (modern Sabzavar) to the west of Nishapur was the subject of a Persian history written in the mid-twelfth century, apparently on the basis of a more elaborate history, now lost, by Zayd b. ʿAlī Bayhaqī, called Ibn Funduq (d. 1170), the *Tārīkh-i Bayhaq*. Although aimed primarily at recording the early history of the *sayyid* families of the town and their achievements, there are a fair number of references to contemporary events affecting the town in that period of a power struggle for control of Khurasan between the Ghurids and the Khwarazm Shahs (see Volume IV, Part One, Chapters 7 and 8).[39] Nothing seems to have survived concerning Merv, despite the fact that this great city was the seat of the early Arab governors of Khurasan and of the Seljuq Sultan Sanjar. But the two great cities of eastern Khurasan, Balkh and Herat, had their historians. The *Fadā'il Balkh* [Excellences of Balkh] of Safī al-Dīn Abū Bakr Balkhī, known only in a Persian version, is confined to biographies of the city's *ʿulamā'*, but the *Tārīkh-i Harāt* of Sayfī Harawī (wrote in the early fourteenth century) deals with the local dynasty of the Kart Maliks, to whom the author dedicated his work, while the *Rawdāt al-jannāt* [Gardens of Paradise (Concerning the Characteristics of

37. Storey, 1927–53, pp. 371, 1300; Barthold, 1968, pp. 15–16.
38. Storey, 1927–53, pp. 364–5; Bosworth, 1994, pp. 23–9; *idem*, in Paul (ed.), forthcoming (see above, note 34).
39. Storey, 1927–53, pp. 353–5, 1295–6; Barthold, 1968, p. 31 and no. 8; Bosworth, 1973, p. 15.

the City of Herat)] of Mu^cīn al-Dīn Zamchī Isfizārī (completed in 1494) is a valuable compendium of information both on Timurid history (Herat being at that time the capital of Sultān Husayn Bayqara, see Volume IV, Part One, Chapter 17) and on the buildings, gardens, amenities and other features of the city's topography.[40]

By the time of Sanjar (1097–57), the empire of the Seljuqs included Khurasan, together with suzerainty exercised far beyond the Amu Darya (Oxus) over the Khwarazm Shahs of Anūshtegin's line and the Karakhanids. Yet little of the limited amount of historical writing produced in these regions from the mid-eleventh century to the Mongol invasions has survived, apart from the anonymous (by an official in the caliphal administration in Baghdad, in the surmise of Angelika Hartmann) Arabic *Akhbār al-dawla al-Saljūqiyya* [Historical Reports of the Seljuq Dynasty] (written at the end of the twelfth or beginning of the thirteenth century), which contains material by Sadr al-Dīn al-Husaynī, an official in the service of the Khwarazm Shahs; this work is especially valuable for the last Seljuqs and their struggles with various Turkish Atabeg lines and the Khwarazm Shahs, who were ultimately victorious in northern Persia.

The Persian history of the Seljuqs, the *Saljūq-nāma*, written by Zahīr al-Dīn Nīshāpūrī (d. *c.* 1184), who was a tutor to some of the last Seljuq sultans, was used by Rāwandī and several other later authors for their accounts of eastern Seljuq history. What seems to have been an important work by Ibn Funduq (see above) – his continuation of the Buyid historian Miskawayh's history, which the Bayhaqī author called the *Mashārib al-tajārib* [Watering-places of the Experiences (of the Nations)], *The Experiences of the Nations* being the title of Miskawayh's history – has not survived as an independent work but is known from citations. An extensive treatise on the history of Khwarazm by Abū Muhammad Mahmūd Khwārazmī (d. 1173) has shared the same fate. Otherwise, for the history of the Seljuqs, we largely depend on Arabic works like Fat'h b. ^cAlī al-Bundārī's *Zubdat al-nusra* [Cream of the Book called 'Help'] written in Ayyubid Syria in 1226, or on Persian ones like Abū Bakr Muhammad Rāwandī's *Rāhat al-sudūr* [Consolation of the Hearts] written at the opening of the thirteenth century in Seljuq Anatolia.[41]

Concerning the history of the other eastern Islamic dynasties of this period, it is that of the Ghurids which is best known to us, thanks to the *Tabaqāt-i Nāsirī* [Nasirean Classes (of Rulers)] (thus called from the honorific of the author's patron, the Turkish Malik of Uchch in north-western India, Nāsir al-Dīn Qabācha), written *c.* 1259–60 by Minhāj al-Dīn Jūzjānī, theologian and diplomat in the service of the Slave Kings of Delhi and their provincial

40. Storey, 1927–53, pp. 354–6, 1296–7; Barthold, 1968, p. 57; Safa, 1986, p. 925.
41. Cahen, 1962, pp. 59–78; Barthold, 1968, pp. 27–30.

rulers. In form, this is a universal history but in fact, a special history of the Ghurid dynasty and their successors in India and their confrontations with the Mongol invaders.[42]

The Mongol period

The career of Jūzjānī does indeed straddle the decades when the Mongols erupted from Inner Asia into the eastern Islamic world (see Volume IV, Part One, Chapter 12). Jūzjānī recorded this cataclysm from the standpoint of a horrified observer of the humbling of the Islamic powers in Central Asia and Khurasan by savage infidel hordes, the scourges of God, and he always accompanied mention of the name of Chinggis Khan with the epithet *malʿūn* ('the accursed one'). This was likewise the inevitable standpoint of another contemporary observer of the Mongol incursions, Muhammad al-Nasawī (d. 1249), who was in the service of the last, fugitive Khwarazm Shah Jalāl al-Dīn Mingburnu when he wrote – somewhat unusually for this late date, in Arabic, although a Persian version of the book was speedily produced – his *Sīrat* [Conduct of] *Sultān Jalāl al-Dīn Mingburnu*.[43] However, the attitude of a third contemporary, Khurasanian chronicler of the Mongol invasions, ʿAtā' Malik Juwaynī (d. 1283), had to be much more nuanced in his writings, whatever his private feelings may have been, since he wrote his *Tārīkh-i Jahān-gushāy* [History of the World Conqueror] as a secretary and high *dīwān* (government department) official of the Mongol rulers themselves.

Together with *The Secret History of the Mongols* (see Volume IV, Part One, Chapter 12, pp. 244–51, and below, pp. 156–8, and Chapter 15, pp. 390–3), a source on which Juwaynī himself drew,[44] Juwaynī's work is our chief authority for the tribal origins of the Mongol people and the rise in Mongolia of Chinggis Khan. He was the only Islamic writer personally to travel to and stay at the *ordu* (encampment) of the Mongol Great Khan at Karakorum (where he began to compose his history) during 1252–3. Hence it is to his work and to the travel narratives of the Franciscan friars William of Rubruck and John of Plano Carpini that we owe virtually all that is known about the Mongol capital.[45] The conflicting allegiances to his Mongol masters and to his Islamic faith and the preservation of the threatened Islamic civilization, Juwaynī could only resolve by interpreting, at least ostensibly, the savagery of the Mongols as a divine retribution for the degenerate state of Islam in his time. He also attempted

42. Bosworth, 1963, pp. 16–17; Barthold, 1968, pp. 38–9.
43. Barthold, 1968, pp. 38–9; Morgan, 1982, pp. 110–13; 1986, pp. 16–17; *EI*[2], 'al-Nasawī, Shihāb al-Dīn Muhammad' (P. Jackson).
44. See Boyle, 1962, p. 136.
45. See for these Western travellers to the Mongol court, Morgan, 1986, pp. 24–6.

to find somewhat lame justifications for the Mongols as extirpators of the heretical Isma^cilis and as facilitating, through the immense extent of their empire, the spread of Islam to such distant regions as China.[46]

The upheavals felt right across Eurasia during the thirteenth century were also the background of what may be justly regarded as a product of Muslim historiography worthy of being linked with al-Tabarī's *History* and that of Ibn al-Athīr. The vizier to the Mongol Il Khanids Ghazan and Öljeytü, a convert from Judaism, Rashīd al-Dīn Fadlallāh, called Tabīb (The Physician), wrote at Ghazan's instigation his *Jāmi^c al-tawārīkh* [Compendium of Histories], two generations or so after Juwaynī at a time when the Mongol domination of Inner Asia and much of the Middle East was an accomplished fact. Apparently the Khan feared that the early lore and achievements of the Mongol people might go unrecorded and thus be forgotten; hence the first part of Rashīd al-Dīn's work is what might be termed an official history of the Mongols and their conquests, in part based on Juwaynī but important as also drawing indirectly (since Rashīd al-Dīn was not allowed to see this sacred work) on the so-called *Altan debter* [Golden Book], the official chronicle of the Mongols (which itself survives only in a Chinese version).[47] Also of interest for the cultural and intellectual history of Islam are the sections on the nations with whom the Mongols came into contact, such as the Chinese, the Indians and the Franks. Of course, these sections are not primary sources for the histories of medieval China, India or western Europe, but they do indicate that there was some contemporary Islamic knowledge of what were to the Muslims the lands of the infidels, and the title which has been accorded to Rashīd al-Dīn of being the first world historian is therefore not unjustified.[48]

The third great historian of the Il Khanid period, ^cAbdallāh Shīrāzī, called Wassāf (*fl.* in the first half of the fourteenth century), like Rashīd al-Dīn served Ghazan and Öljeytü and then the latter's son Abū Sa^cīd. He aimed in his *Tārīkh* at continuing Juwaynī's chronicle of the Mongols and their empire, and employed an even more tedious and bombastic Persian style than Juwaynī, one which entranced his contemporaries and was imitated by later Persian historians but which has tended to obscure the great value of his historical information. This last represents a quite independent tradition from that of Rashīd al-Dīn, and although Wassāf wrote in western Persia, probably in Fars where he was employed in the provincial administration, he has independent data on the rule of the Mongols in China, on the Chaghatayids in Turkistan

46. Storey, 1927–53, pp. 260–4, 1272; Juwaynī, 1958, Vol. 1, Introduction; Barthold, 1968, pp. 39–41; Morgan, 1982, pp. 113–18; 1986, p. 18.
47. See Boyle, 1962, pp. 134, 137; Morgan, 1986, pp. 11–12.
48. Storey, 1927–53, pp. 71–8, 1230–2; Barthold, 1968, pp. 44–7; Boyle, 1971, Introduction; Morgan, 1982, pp. 119–21; 1986, pp. 21–2.

and on the Central Asian state of Qaydu, the Great Khan Qubilay's rival for power there.[49]

Further work by two protégés of Rashid al-Din who worked as officials for the Il Khanids may be noted here: the *Tārīkh-i Uljāytū Sultān* of Abu 'l-Qāsim Kāshānī, valuable for the specific reign of that Khan; and the general history, the *Tārīkh-i Guzīda* [Select History], of Hamdallāh Mustawfī Qazwīnī, which ends with a short section on the Mongols, useful to some extent because Mustawfī wrote in 1330, the later Il Khanid period, for which we have few sources.[50]

The Timurid period

The succeeding Timurid period brought forth a crop of important histories connected with the ruling dynasty and its dominion over Khurasan and Transoxania, and, above all, describing and lauding the exploits of Timur. Although Timur's wars brought much destruction to the Middle East, he was, unlike the earlier Mongols, a Muslim and, like many conquerors who attempted to salve their consciences for their violence, cultivated the *ᶜulamā'* and Sufi *shaykhs*. Some of Timur's official historians contented themselves with giving a straightforward account of his conquests without implying any moral judgement. This was the case with Nizām al-Dīn Shāmi (from Shanb, a quarter of Tabriz, and not from Shām, 'Syria') (d. by 1411). When he was in Timur's entourage, the amir in 1401 commissioned a history of his conquests, to be written from official records and in a straightforward Persian style which all would be able to understand; this is Shāmī's *Zafar-nāma* [Book of Conquests]. The identical title was used some 20 years later for a history of Timur and his successors by the courtier of Shāh Rukh, Sharaf al-Dīn ᶜAlī Yazdī, who completed his work in 1425 but in a much more florid style than Shāmī's. Yazdī's work was much admired by contemporary literati but is less easy for modern historians to use.[51]

The historical works of Hāfiz-i Abrū fall within the genre of universal history, since this courtier of Timur and Shāh Rukh was instructed by the latter to put together a large-scale chronicle which would subsume earlier works from Balᶜamī's Tabarī translation onwards up to Rashīd al-Dīn's history of the Mongols and then up to the year 1416 in Shāh Rukh's reign. As well as this *Majmūᶜa* [Compilation], he wrote a further universal chronicle, the *Majmaᶜ al-tawārīkh*

49. Storey, 1927–53, pp. 267–70, 1272–3; Barthold, 1968, pp. 41, 48–9; Morgan, 1986, pp. 21–2.
50. Barthold, 1968, pp. 47, 49–50; Morgan, 1986, pp. 22–3.
51. Storey, 1927–53, pp. 278–9, 283–7, 1273–4; Barthold, 1935, p. 209, French tr., 1945, p. 165; 1968, pp. 53–4; Safa, 1986, pp. 921–2; *EI*², 'Shāmi, Nizām al-Dīn' (P. Jackson); 'Sharaf al-Dīn ᶜAlī Yazdī' (C. E. Bosworth).

[Bringing-together of Histories], whose fourth and last book was a special history of Timur and the reign of Shāh Rukh up to 1427, called separately the *Zubdat al-tawārīkh* [Cream of Histories]. The works of Hāfiz-i Abrū, as analysed by F. Tauer, display particularly well the methodology of these later Persian historians in producing a pastiche of earlier chronicles, although his *Zubda* is an original source, and the best one extant, for the first 22 years of Shāh Rukh's reign (i.e. 1405–27).[52] Likewise a general history, in this case going up to 1441, is the *Mujmal-i Fasīhī* [Fasih's Compendium] of Fasih Khwāfī, i.e. from Khwaf in Kuhistan; it is significant only when it deals with contemporary events which the author, as a treasury official for Shāh Rukh and his son Baysunqur, was well placed to observe, and when the author is concerned with the *ᶜulamā'* and *shaykh*s of Khurasan and Transoxania.[53]

For the history of the later Timurids, especially important is a third 'official history', the *Matlaᶜ al-saᶜdayn* [Rising-place of the Two Auspicious Stars], written by ᶜAbd al-Razzāq Samarqandi (d. 1482), who was in the service of Shāh Rukh and then of his great-nephew Abū Saᶜid b. Muhammad b. Mīrān Shāh as a courtier, diplomatic envoy and so on. The *Matlaᶜ al-saᶜdayn* depends heavily on Hāfiz-i Abrū's *Zubda* for events from the reign of the last Il Khanid Abū Saᶜid b. Öljeytü up to 1427, but thereafter becomes a prime source for the period up to 1470, the year of its completion, its simple style facilitating its wide usage.[54]

The sole corrective which we possess today for the approach and attitude to events of these Timurid court historians lies in the *ᶜAjā'ib al-maqdūr fī nawā'ib Tīmūr* [The Wonders of What has been Divinely Ordained in Regard to the Disasters Brought About by Timur] of the Syrian historian Ibn ᶜArabshāh (d. 1450), whose family had been carried off from Damascus by Timur to his capital Samarkand in 1400. He ranged through the Inner Asian lands of the Chaghatayids and the Golden Horde, and was in the service of the Ottomans for a while. His history, written in the Arab lands hence in Arabic, depicts Timur as a bloodthirsty tyrant, although it allows the impressiveness of his conquests.[55]

From the closing decades of our period, the end of the fifteenth century, came a general history in six books, the *Rawdat al-safā'* [Garden of Purity] of Muhammad Mīrkhwānd (d. 1498), of Bukharan *sayyid* origin and protégé of the great late Timurid vizier Mīr ᶜAlishīr Nawā'ī. This was to enjoy exceptional fame in the Irano-Turkish worlds and achieved many Turkic translations, including into Ottoman and Chaghatay. It became known in the nineteenth

52. Storey, 1927–53, pp. 86–9, 1234–5; Barthold, 1935, p. 210, French tr., 1945, p. 166; 1968, pp. 55–6; Safa, 1986, p. 922.
53. Storey, 1927–53, pp. 90–1, 1236; Barthold, 1968, p. 55; Safa, 1986, p. 922.
54. Storey, 1927–53, pp. 293–8, 1276–7; Barthold, 1968, p. 56; Safa, 1986, p. 924.
55. *EI*², 'Ibn ᶜArabshāh' (J. Pedersen).

century to Western orientalist scholarship on account of the straightforwardness of its Persian style and the accessibility of many manuscript copies, so that sections of it were early edited and/or translated into Latin or the modern European languages. Mīrkhwānd's history is not entirely derivative, but, as with many such compilations, scraps of earlier, now lost sources can be found within it; thus it gives excerpts from the anonymous *Malik-nāma* [Book of Kings] on the origins of the Seljuq family in the Oghuz steppe before they came into the Islamic lands and on their subsequent overrunning of Khurasan, and quotes from a fourteenth-century history of the Sarbadars of Sabzavar (see Volume IV, Part One, Chapter 16, pp. 322–3).[56] Finally, although this takes us slightly beyond our period, one should note the continuation of Mīrkhwānd's work by his grandson Ghiyāth al-Dīn Khwāndamīr (d. *c.* 1535), who also enjoyed the patronage of Nawā'ī, of the Timurid prince Badīᶜ al-Zamān, and of Bābur and Humāyūn in India. He added a seventh book to the *Rawdat al-safā'* on the reign of Sultān Husayn Bayqara and his sons, and wrote two general histories of his own. One of these, the *Habīb al-siyar*, roughly translatable as 'The Cherished Form of Conduct', carried events up to Shah Ismāᶜīl I Safawī and is valuable for its contemporary information on the final disintegration of Timurid power and the early career in Transoxania of Bābur, who introduced Mughal power into India.[57]

Part Three

Arabic, Persian and Turkish historiography in Central Asia

(R. N. Frye)

Islam brought a strong sense of the need to record history to the peoples of Central Asia. Before the coming of Islam, Central Asia, like India, was little concerned with the chronological recording of events and we possess no histories or fragments thereof, or even reports of their existence, on the vast region of Central Asia. On the other hand, according to the Islamic view of history, what occurred before Muhammad's message was an age of ignorance and not worth recording. The general point of view in the histories written in Arabic was that Arabia's pre-Islamic past was of interest only to a few tribesmen who

56. Storey, 1927–53, pp. 92–101, 1236–7; Safa, 1986, p. 925; *EI*², 'Mīrkhwānd' (A. Beveridge and B. F. Manz).
57. Storey, 1927–53, pp. 101–9, 1237–8; Safa, 1986, pp. 925–6; *EI*², 'Khwāndamīr' (A. Beveridge and J. T. P. de Bruijn).

wanted to know something about the exploits of their tribe in the past, and there was no kind of nationalism to provoke inquiry into the past glories of ancient dynasties. In Iran and Central Asia, on the other hand, there was great interest in the civilization of the Sasanians and even regarding minor dynasties in Central Asia. Some of this interest was no doubt inspired by a desire to outshine Arabs whose main claim to privilege in the caliphate was to claim descent from, or relation to, the family of the Prophet. Pride in descent from the Sasanian royal family, or from one of the great noble families of the past, probably inspired interest in recording the glories of pre-Islamic times. A Middle Persian *Khwadāy-nāmag* [Book of Lords] of ancient Iran was translated into Arabic in the eighth century by a Persian Zoroastrian convert to Islam, Ibn al-Muqaffaᶜ. Thus, at the beginning of the Umayyad caliphate we have two sources for pre-Islamic history, one tales of the Arab tribes and the other the legacy of Sasanian Iran in the form of stories as well as the dynastic history of the Sasanians. But historical writing in Arabic, on the whole, seems to have ignored both in favour of the history of the rise of Islam.[58]

In Central Asia, however, there were a few inquiring minds, such as the Khwarazmian al-Bīrūnī, who were fascinated by the pre-Islamic past of their land, as well as by the genealogies of Arab tribes, or of learned men in the Islamic religion. For at first most Muslim historians were concerned with the transmitters of traditions concerning the Prophet, and later this was extended to his followers in succeeding generations. This may be described as a continuation of the Old Testament genealogical histories with incidental information added to the lists of generations. From the outset, then, the early historians of Islam had biographical information as their main content. This applied to all historians, including those of Iranian or Central Asian background, but by the fourth century changes came about.

Historiography took several main directions, after early concern with the origins of Islam, which had a purpose of glorifying Islam and showing how it was superior to other religions. In Central Asia, as in Iran, writers of history either became interested in composing general histories or local city histories. Frequently the former were really only histories of the Islamic oecumene, but they seem to have had more of a goal of enlightenment than simply recording the virtues of one's home town and short biographies of the illustrious men who had lived there. Many city histories became large indexes – the equivalent of the modern telephone directory – with long lists of names and very little information about the persons in the books. Such works as the *Kitāb-i Mullāzāda* on the history of Bukhara and the *Kitāb al-Qand* for Samarkand were among the pre-Mongol histories of cities in the east.

58. Nöldeke, 1920, pp. 14–18; Richter, 1932, pp. 4–32.

For the first three centuries of Islamic rule in Central Asia everything is written in Arabic, and only in the fourth/tenth century, at the time of the Samanid dynasty with its capital at Bukhara, do writings in Persian appear.[59] The universal histories, such as the massive work of al-Tabarī in Arabic, generally followed a chronological scheme of reporting what happened year by year, and in the case of al-Tabarī, several versions of one event. This style was copied and modified by other authors such as Ibn al Athīr, and only later, after the Mongol conquest of the Near East, do universal histories follow the pattern of reporting events by dynasties. The much-abridged Persian translation of the history of al-Tabarī, commissioned by Bal^camī, vizier of the Samanid ruler Mansūr b. Nūh, however, presages the future style of writing by abandoning the tedious repetitions of the Arabic original. In the east such histories, for the most part, were written in Persian, since even those who knew Arabic preferred to read histories in the common literary language of Iran and Central Asia, understood by the local population.

Since poetry was the largest part of Persian literature, even historical works in poetry were produced after the Mongol invasions. Also, since historical works were commissioned by rulers or wealthy patrons, many historical works tend to glorify that patron or his dynasty. Gardīzī's *Zayn al-akhbār* [The Adornment of History] is a universal history in the pattern of dynasties, but the Ghaznavids, to one of whom the work is dedicated, naturally receive some praise in the book.

The city histories, such as the history of Qum in Persia or Bukhara in Transoxania, were originally written in Arabic, but in most cases, only later Persian translations have survived. The *Tārīkh-i Bukhārā* by Narshakhī, written in the tenth century but translated and abridged in the twelfth century, is remarkable in having considerable material devoted to pre-Islamic times, usually ignored in other works. Narshakhī's history shows another feature of many of the Persian-language histories, i.e. extensive copying or paraphrasing of earlier works. Usually the author mentions which older books he has used in his composition, but sometimes plagiarism is rampant. Other city histories, however, are concerned only with shrines in the city and biographies of learned men, poets and/or saints; this is especially the case with the histories of Nishapur. As such, they are really biographical works rather than histories (see further on the genre, above, pp. 145–7).

After the Mongol conquest of Iran, universal histories in a new style are found, possibly influenced by Chinese dynastic histories, but containing more information about peoples and tribes than the older universal histories. The most famous of these new histories was the *Jāmi^c al-tawārīkh* [Compendium of Histories] of Rashīd al-Dīn, in which much information about Turkish and

59. Frye, 1962, pp. 252–5.

Mongol tribes and about China and India is found for the first time (see above, p. 149). This pattern continued in a proliferation of universal histories under the Timurid dynasty in Central Asia. The campaigns of Timur are described in a number of works. Timur had scribes record daily events, and these notebooks provided material for the many historians at the Timurid court in Samarkand. As a result, the history of the Timurid period is the best known in the period under discussion.

The influence of Firdawsī's *Shāh-nāma* [Book of Kings], an epic rather than a history of pre-Islamic Iran, provided another model for poet-historians of the Timurid period and later. We have a *Tīmūr-nāma* and a *Shāhrukh-nāma*, both in poetry, wherein the new rulers are compared to the epic heroes of the past. The historical works in poetry are characterized by their extensive use of poetic licence and they set a style for many future writers of history.

It is clear that history became ever more important as a vehicle for justifying the rise to power of a new dynasty or simply to flatter a patron. The proliferation of such histories after the Timurid period is a feature of the history of Central Asia, India and Iran. All histories are now in Persian. In the east, histories were not written in Arabic after the tenth century, although Rashīd al-Dīn's work was translated into Arabic. Arabic was reserved for religious or philosophical tracts and scientific works of medicine, mathematics and astronomy.

Authors of historical works were frequently literary men who also wrote poetry or other works, sometimes in Arabic if in a scholarly vein. There is another genre of literature, however, which is allied to history and does frequently contain stories about the past with historical materials in them. In Persian these works generally have been called *andarz* (advice) literature since they are books of counsel for rulers (see on the genre in general, above, pp. 140–1). Other books contain stories in a similar vein with historical anecdotes and information about rulers and also common folk. Such a work is the *Chahār maqāla* [The Four Discourses] of Nizāmī ʿArūdī Samarqandī (written in the middle of the twelfth century), which does not mention rulers, but secretaries, astrologers, poets and others instead. Another such book, written in the following century, was the *Jawāmiʿ al-hikāyāt* [Collection of Tales] by Muhammad ʿAwfī. Thus the historical literature of this period was copious and manifold.

We may say that histories were written in Arabic until the tenth century, but from the eleventh century onwards, Persian usurps the place of Arabic in Iran and Central Asia. What of Turkish? It is interesting that in the tenth to the twelfth century not only were attempts made to write Persian in Arabic letters, but the same was done in the Khwarazmian and Mazandarani languages, examples of which have survived. The initiative for this came from a desire of Islamic missionaries to spread the faith among the common folk of the east, especially to villagers, and to pastoralists who had been little touched by Islam until this period. The surviving specimens of the two aforementioned languages

are interlinear translations from Arabic of religious texts, law books or works of theology. One would expect the ever growing number of Turks converted to Islam in Central Asia and the Near East to have at least attempted to write their language in the Arabic alphabet. In East Turkistan, the Uighur Turks had adopted the Sogdian alphabet to write their language and we have an extensive literature in the Uighur language. In the world of Islam, however, only the Karakhanids or Ilek Khans, who probably stemmed from the Karluk tribe (see Volume IV, Part One, Chapter 6) and who assumed rule after the fall of the Samanids, produced a Turkish literature which was an Islamic one. But the Karakhanids also patronized Arabic and Persian literature, and few of the earliest Islamic Turkish language writings have survived. The most important is the *Qutadgu bilig* [Wisdom of Royal Glory] of Yūsuf Khāss Hājib from Balasaghun in modern Kazakhstan. Yet this book is in poetry, is completely within the Perso-Islamic tradition and has no historical events but is rather a theoretical *andarz* work, a 'Mirror for Princes'. It is only after the period under discussion that Turkish historiography flourishes, but then it is completely in the Perso-Islamic tradition.

Part Four

Historiography among the Mongols

(Sh. Bira)

The earliest known, surviving monument of Mongolian historiography is the so-called *Mongol-un Niguca Tob-ciyan* [The Secret History of the Mongols].[60] It is widely believed to have been written in 1228 or in 1240, although the exact date of its composition and its authorship are still a matter of debate. The problem of its authorship is most likely insoluble, because the book may not have been written by any single author but by several. Probably the oral tradition pertaining to the genealogy and heroic exploits of Chinggis Khan and his ancestors was first written down at the Khan's court after his death, through the collective efforts of transmitters of history and traditions under the supervision of one of the literati (in Mongolian, *bitiqci*). It was finally approved at the great *kurultay* (assembly) of the Mongol nobles as a family history of the 'Golden Clan' of Chinggisids.

Ancient history in Mongolia developed through the double inspiration of poetry and folklore. The first written Mongol masterpiece was a heroic epic

60. *The Secret History of the Mongols* has been translated into many languages. The English translation we have used is that by Cleaves, 1982.

as well as a history. *The Secret History of the Mongols* represents the richest treasure-house of Mongolian folklore. The book is divided into three parts: a genealogy of the ancestors of Chinggis Khan; stories about his life; and a short section on his son and successor, Ögedey Khan. The first part records mainly the legendary history of Mongolia as reconstructed from ancient oral traditions – myths and legends, and stories about historical events in the life of Mongol nomads. The legend begins with the story of the birth of the forefather of the Mongols, 'a bluish wolf which was born having [his] destiny from Heaven Above', and 'His spouse was a fallow doe'.[61] It is obvious that here we have the traces of totemism.

The legend of Alan-goa, also to be found in *The Secret History*, reflects the next step in the development of the mythological notion by the Mongols pertaining to their ancestry. According to this legend, Chinggis Khan's clan derived its origin from a man whose name was Bodoncar but who was born to his mother Alan-goa as the result of an immaculate conception by light.[62] Closer examination of the text reveals that this legend reflected the perceptible influence of the Zoroastrian-Manichaean cult of light. The Mongols, at the time of historical writing, preferred to glorify the origin of their Khans from the viewpoint of a more advanced ideology, i.e. this cult.[63]

The main theme is developed in the second part of the book, in which legend and myth give way to more reliable historical data taken, most probably, from written sources. It assumes the characteristics of a chronicle. From paragraph 141, *The Secret History* presents a historical chronology according to the 12-year animal cycle. Its chronology covers the events from 1201 (The Year of the Hen) until 1240 (The Year of the Rat), although it does not keep strictly to a year-by-year succession and becomes confusing as regards the accuracy of some events. (See further on *The Secret History* as a literary document, below, Chapter 15, pp. 390–3.)

One of the distinctive features of early Mongolian history was its idea of sacral rulership. The heaven-sanctioned Khanship conception of the Mongols was developed, and according to this conception, Chinggis Khan was eternally protected by 'Everlasting Heaven' (Möngke Tengri).[64] The other idea running through the book is that of the unification of numerous tribes in Mongolia into a single state under the power of a strong Khan.

Most historical events in the main part of the book – the life of Chinggis Khan, his construction of the Mongol state, the administrative and military structure and many others – may be taken as trustworthy historical data.

61. Cleaves, 1982, p. 1, para. 1.
62. Ibid., p. 4, para. 20.
63. Bira, 1989, pp. 30–3.
64. Cleaves, 1982, p. 115, para. 187.

Moreover, *The Secret History* is a unique source for gaining an insight into the way of life, patterns of thought and beliefs of the ancient Mongols. In general, the book can be described as a historical chronicle, retold in epic style and 'impregnated with the aroma of the steppe'.[65]

During the period of the Mongol World Empire, with the subsequent adaptation of Mongol rulers to the realities of Chinese and Iranian culture, the historiographical activities of the Mongols shifted from Mongolia to outside that region, and it was there that Mongolian historiography entered into direct contact with the already developed traditions of historical writing – Buddhist, Chinese and Muslim. Because of Mongol domination, their historiography gained the leading position throughout the empire, and the family history of Chinggis Khan and his clan was regarded by historians as an official history. The legend of Alan-goa, the foremother of the 'Golden Clan' of Chinggisids, enjoyed extraordinary popularity throughout the empire, from Iran to Tibet.

The Mongol Khans appreciated the significance of history, patronized it and did their best to use it in their universal policy. Nevertheless, hardly any historical works have survived from those days in their original form. We know from Chinese and Tibetan sources, which used them extensively, of the existence of some important books, such as the *Altan debter* [Golden Book] and the *Tobčiyan* [Histories]. However, the only book in Mongolian that has reached our times, in the sixteenth-century edition of Qutugtu Sechen Qung Tayiji (1540–86), is what is briefly called the *Chaghan Teuke* [White History],[66] supposedly written during the reign of Qubilay Khan between 1260 and 1280.[67] This *White History* is notable because for the first time it expounds the Buddhist philosophy of history, which formed, in the long run, the ideological basis of Mongolian historiography as a whole. It is here that the traditional scheme of the three Buddhist monarchies (India, Tibet and Mongolia), with the introduction of a genesis of the universe, including the inanimate and animate worlds, is set forth under the impact of Buddhist teaching. In addition, the anonymous author elaborates another important concept of Mongol Buddhist historiography, that of the 'two orders', i.e. the Khan's power and Buddhist doctrine.[68]

Extensive historiographical work was carried on in Dai-du (Khanbalïk, Peking), the capital city of the Yüan empire. In 1264 Qubilay Khan instituted the Bureau of Dynastic History, which was responsible for the compilation of *shih-lu* [Veritable Records] of all deceased Khans under the supervision of the reigning Khan. It was these 'Veritable Records' that subsequently formed the basis of the famous *Yüan-shih* [History of the Yüan Dynasty]. It took nearly

65. Vladimirtsov, 1934, p. 8.
66. The full name is *Arban buyantu nom-un čagan teüke* [The White History of the Ten Virtues]. The manuscript is in the State Library of Mongolia in Ulan Bator.
67. Bira, 1978, p. 92.
68. Ibid., p. 93.

six months (from March to September 1369) for a board of 18 compilers to finish 159 *chuan* of this. It was possible to accomplish so much in so short a time because the compilers could rely principally on the histories from annals and biographies of 13 reigns from Chinggis Khan onwards.[69] The *Yüan-shih* represents a valuable source for the reconstruction of historical knowledge of the Mongols of that time, and is also a unique synthesis of the Chinese and Mongolian historiographical traditions that then ran so closely in China. From this source we discover that there was a series of historical compilations in Mongolian and that these are mentioned several times in the *Yüan-shih* under the general term *Tobčiyan*. Some Mongolian sources were preserved in the Chinese translation; one example is the *Sheng-wu ch'in-cheng lu* [An Account of the Victories of Our Imperial Expedition], which may be considered a typical example of the Chinese translation of a Mongol chronicle that has not survived in its original.

Historiography enjoyed no less attention and patronage at the court of the Mongol Il Khans in Iran, where Mongol rulers had the privilege of availing themselves of the rich tradition of Muslim historiography. They encouraged historians of different nations to write history and made their archives and official chronicles available to them. There resulted the two most famous works of the period of Mongol rule in Iran: the *Tārīkh-i Jahān-gushāy* [History of the World Conqueror] by ᶜAtā Malik Juwaynī[70] and the *Jāmiᶜ al-tawārīkh* [Compendium of Histories] by Rashid al-Din (see above, pp. 148–9). The authors of these works used original Mongolian sources extensively, so that they are of great significance for the reconstruction of historical knowledge of the Mongols in the thirteenth and fourteenth centuries.

Rashīd al-Dīn's work was written in 1300–11, by order of the Il Khans Ghazan and Öljeytü, and was the world's first real universal history. It was possible to produce it due to the efforts of a multinational team of historians working under the supervision of Rashīd al-Dīn, the organizer and compiler of the work, who had the unique opportunity of obtaining the assistance of scholars from different nations resident at the Il Khanid court. Accordingly, his book represents a collection of the histories of the respective countries rather than an original composition.[71] One should, however, stress that the history of the Mongols was the main theme of the book, thus relegating the history of the Islamic people to the background.

In writing the history of the Mongols, Rashīd al-Dīn enjoyed particularly propitious circumstances – he availed himself of the assistance and favour of influential Mongols like Pulad-chinksank (Mongolian, Bolod-chingsang), the greatest expert on Mongol history and the personal representative of the

69. Hung, 1951, p. 472.
70. Juwaynī, 1958.
71. Bira, 1978, pp. 133–4.

Great Khan Qubilay at the Il Khanid court, and the Il Khan Ghazan, whose knowledge of history was only surpassed by that of Pulad. All materials pertaining to the Mongols, which Rashīd al-Dīn includes in detail in his book, must have been retold or specially prepared in written form for him by his Mongol colleagues, using Mongol sources, like the *Altan debter*, the official chronicle of the Golden Clan of the Chinggisids. This was 'always preserved in the treasury of the Khan in the hands of the oldest amirs',[72] but has been lost to us.

It is assumed that the first draft of the *Jāmiʿ al-tawārīkh* was originally not written in Persian, but goes back to a Mongolian version, probably compiled by Pulad-chinksank and other Mongol genealogists; consequently, the monumental history became a multilingual compilation which was edited in Persian and Arabic and perhaps also in Mongolian and Eastern Turkic.[73] Thus, the thirteenth century saw the birth of written history in Mongolia, which was to develop further under the specific historical conditions of the Mongol World Empire.

72. *Sbornik Letopisey*, 1952, p. 180.
73. Togan, 1962, p. 64.

5

PHILOSOPHY, LOGIC AND COSMOLOGY

M. Dinorshoev

Introduction

In the course of the seventh and eighth centuries, the spiritual life of the countries of Central Asia that had been conquered by or exposed to the influence of the Arab caliphate underwent changes; ethics began to give way to ontological and epistemological considerations in the eighth and ninth centuries, and to paraphilosophical doctrines, including *kalām* (dialectical theology) and Sufism. Philosophical thinking acquired a mystical, esoteric quality. In syncretic teachings such as the philosophy of Illuminationism (*Ishrāq*), which endeavoured to combine apodeictic and esoteric philosophy, there was an attempt to develop a universal style of thinking constructed upon both apodeictic and esoteric types of reasoning.

Philosophical thought in the region essentially went through two stages of development. The first stage spanned the eighth to the eleventh century, when the currents of philosophical and religious/philosophical thinking referred to above first took shape, flourished and spread. Thus *kalām*, which emerged in the second half of the seventh century as an offshoot of the scholastic disputes of the Jabrites and Qadarites, passed through Muᶜtazilite and Ashᶜarite phases to the work of al-Ghazālī. Similarly, Sufism, which began as a movement of *zāhid*s (ascetics), had developed into a fully fledged mystic philosophy by the tenth and eleventh centuries with its own ontological, epistemological, ethical, aesthetic and social aspects.

One of the distinguishing features of the second stage in the development of philosophical thinking, which extended from the twelfth to the fifteenth century, was the fact that one of the schools of philosophy, that of the Materialists (*Dahriyya*), went into decline. Another feature of the period was the tendency of different philosophical schools to become reconciled and combine with each other. This trend had started in the previous period but became more marked in the second stage. The Aristotelian philosophy of the eastern

Peripatetics (*Mashā'iyya*) thus acquired some features of *kalām* and Sufism, *kalām* was influenced by the Peripatetics, and the Sufis and Sufism absorbed elements both of *kalām* and of the teachings of the Peripatetics. Philosophy was becoming even more strongly influenced by the Islamic religion: the constant references to the Qur'an, to *hadīth* and to religious authorities were an outward sign of this process, which also involved attempts to bring philosophical concepts into line with religious dogmas and basic tenets.

Another particularity of philosophical thought from the twelfth to the fifteenth century was the appearance and development of commentaries. Many scholars see this as denoting a lack of creativity, but this is not entirely correct. One need only compare the *Lubāb al-Ishārāt* [The Quintessence of (the Work Called) the Indications] of Fakhr al-Dīn al-Rāzī (1148–1209) and the *Sharh al-Ishārāt* [Commentary on (the Book Called) the Indications] of Nasīr al-Dīn al-Tūsī with Ibn Sīnā's own *Kitāb al-Ishārāt wa 'l-tanbīhāt* [Book of Indications and Admonitions] to see that works described as commentaries were often entirely original.

Striking proof of the creativity of philosophical thinking at the time was the philosophy of Illuminationism, founded by Shihāb al-Dīn Yahyā al-Suhrawardī in the twelfth century; the subsequent development of philosophical thought was greatly influenced by the ideas and concepts of this outstanding thinker.[1] The natural sciences and mathematics also flourished from the eighth to the fifteenth century in the regions of Central Asia and scholars there contributed much to the establishment and advancement of these branches of knowledge (see further in Chapter 6).

Classification of the sciences

The problem of the classification and subdivision of the sciences was posed by various scholars. One of the first models was proposed by Abū Nasr al-Fārābī (d. 950), who viewed philosophy as the sum of all knowledge, dividing it primarily into theoretical and practical or civic philosophy. For him, theoretical philosophy was concerned with the knowledge of things that were independent of human action and embraced mathematics, physics and metaphysics. Practical or civic philosophy, divided into ethics and political philosophy, dealt with the knowledge of subjects that were a consequence of human action. He proposed the following classification of the sciences in his *Majalla fī ihsā' al-ʿulūm* [Collected Work on the Enumeration of the Sciences]:

1. The science of language (*ʿilm al-lugha*): the science of simple words and of word combinations, of the laws governing simple words and word

1. See Ziai, 1990; *EI*², 'Is͟hrāḳiyyūn' (R. Arnaldez).

combinations; the science of the laws of writing (orthography); and the science of the rules of correct pronunciation and of the rules of prosody.

2. Logic (*mantiq*): the science of all laws conducive to the improvement of the intellect, setting human beings on the path towards the truth, protecting them from error, enabling them to check the accuracy of knowledge and consisting of the study of the processes of conceptualization and judgement, syllogism, the rules of proof and dialectical, sophistical, rhetorical and poetic expressions of judgement.
3. Mathematics (*ᶜilm al-riyāda*): arithmetic, geometry, optics, astral sciences (astronomy and astrology), music and musical instruments, the science of weights, the science of mechanics.
4. Physics (*ᶜilm al-tabīᶜa*): the study of the general principles underlying simple and complex natural bodies; of the heavens and the earth; of origination and annihilation; of actions and experiences; of compounds; of minerals; of plants and of animals.
5. Divine science (*al-ᶜilm al-ilāhī*) or metaphysics (*mā baᶜd al-tabīᶜa*): the science of the general principles of being; of existing entities; of the foundations and principles of specific theoretical sciences; of non-material, supernatural beings (particularly, the First Being, i.e. God).
6. Civic science (*al-ᶜilm al-madanī*) or civic philosophy (*al-hikma al-madaniyya*): the science of happiness; of virtues, and virtuous and non-virtuous societies.
7. Jurisprudence (*fiqh*): the science assessing any action or deed lacking clear definition in the canon law of any religion.
8. *Kalām*: the branch of knowledge concerned with defending the views and actions of the Prophet of the Muslim religion and rejecting all that ran counter to his teachings.[2]

This type of classification of the sciences, which was based on the principle of the segmentation, co-ordination and subordination of the sciences according to the particular object and subject of study, was adopted and extended by Ibn Sīnā and Nasīr al-Dīn al-Tūsī, who did not, however, include *kalām* in their category of the sciences and omitted the section on the science of language. Ibn Sīnā in his *al-Hikma al-sharqiyya* [Eastern Philosophy] or *Hikmat al-mashriqiyyīn* [Philosophy of the Easterners] divided metaphysics into theology and universal science (philosophy proper), which was a significant step in achieving independent status for philosophy. In this work, he decided to make law a fourth subdivision of practical philosophy, but his proposals here did not find favour.[3]

2. Netton, 1992.
3. *EIr*, 'Avicenna. vii. Practical Science' (M. Mahdi et al.).

Another type of classification of the sciences was developed by Abū ʿAbd Allāh al-Khwārazmī (d. 997). It was based on the view of science not just as a knowledge of things but also as knowledge of God and divine prescriptions, and also as the property of a particular people. The general outlines of his classification are as follows:

I. The Arabic or religious sciences:

1. *Fiqh.*
2. *Kalām.*
3. Grammar.
4. The secretarial art.
5. Poetry and prosody.
6. History.

II. The non-Arabic sciences:

1. Theoretical philosophy: (a) physics – medicine, meteorology, mineralogy, alchemy, mechanics; (b) mathematics – arithmetic, geometry, astronomy, musical theory; (c) metaphysics or theology; (d) logic.
2. Practical philosophy: (a) ethics; (b) stewardship; (c) politics.

This suggests that for al-Khwārazmī, the Muslim peoples had no knowledge of the natural sciences or of philosophy, which was therefore taken from other peoples, such as the Greeks, reflecting the origin of the Arabs in their Arabian environment, but this was not entirely true.[4]

A third type of classification of the sciences was established by Muhammad al-Ghazālī (1058–1111), Fakhr al-Dīn al-Rāzī and Qutb al-Dīn Shīrāzī (1236–1311). It is found in its most highly developed form in al-Shīrāzī's *Durrat al-tāj* [The Pearl of the Crown], which divided the sciences into two main categories, the philosophical and the non-philosophical. The philosophical sciences were the eternal verities which were unaffected by the passage of time and changes of place or from one people or country to another. The non-philosophical sciences were types of knowledge liable to change with the passage of time and from one place, people or country to another. Al-Shīrāzī divided the latter group into religious and non-religious sciences. The non-philosophical sciences were religious if they were based on the *sharīʿa* (religious law), and non-religious if that was not the case. Although giving no clear definition of the concept of the non-religious sciences, al-Shīrāzī provided a detailed classification of the philosophical and religious sciences. As his classification corresponds almost exactly to the Peripatetic tradition, and particularly to the classification of rationalistic sciences offered by Ibn Sīnā, there is no need to reproduce it here.

4. Bosworth, 1963.

Al-Shīrāzī divided religious scholarship into two sections, each of which consisted of several disciplines.

The first section, the science of the foundations of religion (*ʿilm usūl al-dīn*), comprised: (a) study of the nature of the Creator; (b) study of the attributes of the Creator; (c) study of the action and being of the Creator; and (d) study of prophecy.

The second section, the study of the branches of religion (*ʿilm furūʿ al-dīn*), comprised: (a) study of the ends (*maqsūd*) of religion: (i) study of Scripture (i.e. of the Qur'an); (ii) study of the traditions of the Prophet (*ʿilm akhbār al-rasūl*); (iii) study of the bases of jurisprudence (*ʿilm usūl al-fiqh*); (iv) study of jurisprudence (*ʿilm al-fiqh*); and (b) study connected with religion, that is the study of literature (*ʿilm al-adab*) including, in particular, lexis (*ʿilm matn al-lughāt*), morphology (*ʿilm al-abniyā'*), etymology (*ʿilm al-maʿānī*), stylistics (*ʿilm al-bayān*), syntax (*ʿilm al-nahw*), metrics or prosody (*ʿilm al-ʿarūd*) and metre (*ʿilm al-qāfiya*).

Al-Shirāzī emphasized that the study of the bases of religion, such as of the nature and attributes of the Creator, was on a far higher plane than the study of the branches of religion. He did not consider the matter of the relationship between philosophical and religious studies. However, no aspect of that question escaped the attention of al-Ghazālī. Essentially, he held that the fundamental forms of knowledge that set human beings on the path of truth and brought order to their lives in both this world and the next were forms of religious learning. Mathematics and physics had no bearing on religion, tending neither to negate nor to confirm it. Their demonstrative nature could, however, lead to unbelief and their development should therefore be subject to strict religious supervision. All the evils of unbelief derived from metaphysics, which should therefore be rejected.

Schools of philosophy from the eighth to the fifteenth century

During this period the most widely known schools of philosophy were those of the Materialists (*Dahriyya* or *As'hāb al-Hayūlā*), the Peripatetics (*Mashā'iyya*), *kalām*, Sufism, Ismaʿilism and Illuminationism (*Ishrāq*).

THE MATERIALISTS (*DAHRIYYA*)

The philosophy of the Materialists was formulated by such figures as Abū Bakr al-Rāzī (865–925), and of this group it is only his philosophical works that have survived, including his *al-Sīra al-falsafiyya* [The Philosophical Mode of Life] and *al-Tibb al-rūhānī* [Spiritual Medicine]; otherwise the school's ideas

can only be reconstructed from the scattered information found in the works of its adversaries and critics. According to these sources, the basis of the philosophy of the Materialists, and particularly of al-Rāzī, was the recognition of five primordial principles: matter, time, space, the soul and God. According to the eleventh-century Ismaʿili writer Nāsir-i Khusraw, however, the doctrine of matter constituted the heart of this teaching. Matter was the primordial substance and the foundation of all being. It consisted of so many primordial, indivisible particles (i.e. atoms), each of which had its own magnitude and could not be divided into smaller parts. The world with all its diversity came into being as a result of the combination of these atoms. Its disintegration, together with the bodies it contained, did not constitute a loss without trace, but a process of decomposition into the original atoms. On the basis of this view, the supporters of the philosophy of Materialism considered that creation from the void (*ibdā'*) was impossible and that it was out of the question that God could create something from nothing. While they considered that space and time, like matter, were primordial substances, they argued that these two substances were closely related to matter and derived their eternal quality from it. From their viewpoint, God as a primordial substance was not the Creator of a world out of nothing but a wise steward who had helped the soul to unite with the body.

In epistemological matters, the Materialists were rationalists. Without denying the role of the senses as links between human beings and the external world in acquiring knowledge of the world, they held that theoretical knowledge and active, creative action were only possible on the basis of reason and thought. All our knowledge and all the sciences at our disposal were the product of the cognitive action of reason. In questions of ethics, the protagonists of this philosophy espoused the principles of hedonism and eudemonism, and considered that moderation should be observed in all things, including pleasure. Only through moderation, the study of philosophy and virtuous conduct could human beings secure happiness. Depravity, on the other hand, resulted in unhappiness.[5]

Analysing the question of religion, both the earlier scholar Ibn al-Rāwandī (d. *c.* 899) and Abū Bakr al-Rāzī concluded that it was a fraudulent fabrication with which the prophets deluded the ignorant masses. Al-Rāzī argued that, as religions and religious sects were the main causes of war, they were contrary to philosophical and scientific principles. Books described as divine were devoid of content and did not deserve to be taken seriously. On the other hand, the works of such thinkers of the ancient world as Plato, Aristotle, Euclid and Hippocrates had rendered great service to humanity.

5. Al-Rāzi, 1950; Watt, 1962, pp. 47–8.

THE PERIPATETICS (*MASHĀ'IYYA*)

The philosophy of the *Mashā'iyya* (i.e. that of the Muslim Peripatetics) first appeared as a school of thought in Central Asia in the course of the ninth century. It developed in the tenth century under Abū Nasr al-Fārābī and appeared in one of its most highly developed forms in the work of Ibn Sīnā. Both these scholars, having absorbed Aristotle's ideas, developed them in accordance with the spirit and the state of knowledge of their day in order to meet the requirements of a new age. This is immediately obvious from their approach to logic, which introduces their philosophical system and is used to build up knowledge by a process of deduction. The creative approach adopted by them to the problems they studied is apparent even in their definition of logic. Whereas Aristotle viewed logic as the study of procedures for the construction of syllogisms, they argued that logicians should also be familiar with the principles of judgement and proof and the methods for their construction; above all, they should explain the essence of the basic concepts used to construct definitions and syllogisms. In addition to definition by genus and class, they looked in detail at description as a mode of definition, and they greatly elaborated (independently, it would seem, from the Stoics) the theory of conditional (implicational) judgements, which Aristotle did not consider as a form of apophatic discourse (judgement). On that basis, they also made a sizeable contribution to the theory of the syllogism, identifying types that consisted of categorical and conditional judgements and developing the theory of apagogic proof, widely employed in science, the foundations of which had been laid by Aristotle.

The starting-point of the Peripatetics was the doctrine of the Necessary and the Contingent Being. The Necessary Being is an indisputable, self-sufficient being that is *causa sui* and the cause of all other reality. It does not come within the limits of any genus and is not subject to any definition or proof; it is not subject to motion; it is incomparable, has no associate or antagonist, is one in all respects and is actually, potentially and conceptually indivisible, for its nature is composed of spiritual essences: it is neither solid nor material but pure good, pure truth and pure reason. The Contingent Being is something that involves no necessity either from the standpoint of being or from the standpoint of non-being and cannot be *causa sui*, only becoming a real and necessary being through that which exists necessarily. Consequently, according to this principle of the philosophy of the Peripatetics, the foundation of being, the demiurge of reality, is that which necessarily exists, i.e. God.

The principle of the Necessary Being and the Contingent Being in the philosophy of the Peripatetics found expression in the theory of emanations, according to which the Necessary Being creates the original intelligence; the other intelligences and their souls then emanate in succession one from another. One might therefore conclude that the philosophy of the Peripatetics was fused with religion. This conclusion would, however, be unwarranted for, unlike

religion (and Islam in particular), the philosophy of the Peripatetics did not hold the relation between the necessary and the contingent to be one of creator and creation but rather one of cause and effect. It did not consider the Necessary Being as Sovereign Creator, but made its action subject to necessity and limited its strength and power by the proposition that God has no power over the impossible. Hence the philosophy of the eastern Peripatetics was fiercely criticized by the *mutakallims* (speculative theologians) for its incompatibility with Islam.

One of the key principles of the Peripatetics was the doctrine of the eternal nature of matter and the world. According to its adepts, the world was eternal because of the eternal nature of the cause which produced it, the Necessary Being. It was also eternal because of the primordial and infinite nature of time and motion, which could not exist without a moving element, i.e. the world and matter. The eternal nature of the world was also attested by the fact that matter preceded any and every nascent object. Another of the basic tenets of the eastern Peripatetics' philosophy was the doctrine of matter and form. They considered matter to be the substrate, the foundation of the being of all objects, processes and phenomena in the world without exception; the existence of this substrate became real and complete by its assuming a variety of forms. The specific, elementary forms of matter were the elements, fire, air, earth and water, which were constantly changing and being transformed from one into the other. As the foundation of being, matter was eternal and indestructible whatever form it took. Form was the configuration of an object, all that was assumed by matter. Matter turned into a specific object – a table, a chair or a bed – thanks to form. It was only in that sense that form was more active and had a greater and more elevated role than that of matter, and not in the sense that matter acquired being through form. In taking the idea of corporeal form and the definition of matter and form one by the other further than had Aristotle, the Peripatetics established a basis for the idea of an indissoluble link between matter and form.

They also devoted a great deal of attention in their works to the problem of cognition. They viewed this as the reflection of the image of an object in the senses and the mind of the subjects of cognition, which occurred as a result of their exposure to real objects and phenomena. In their analyses of the problem of sensory and rational cognition, al-Fārābī and Ibn Sīnā argued, in line with the basic premise of their gnosiology (cognition as reflection), that sensory cognition was attributable to the effect of objects on the sense organs and consisted in the apprehension of the separate qualities of substances (sensation), differentiation between the matter and the form of the object (representation) and the formation of an idea and concept of the object on the basis of specific perceptions (imagination). The apprehension of the essence of an object and the formation of a general concept of it were the prerogative of rational cognition, which had two forms: conception and judgement. The conception of an

object was formed with the aid of definition and description, and a judgement of it by means of syllogism, induction and analogy.

One of the great achievements of the Peripatetics here was their doctrine of intuition. In their view, this was the highest cognitive faculty in humans, consisting in the immediate discovery of the third term in a syllogism without any study or instruction. Here they grasped a number of essential aspects of intuitive knowledge: the rapidity with which the new knowledge was acquired and its non-empirical nature, the involuted nature of intuitive as opposed to discursive knowledge and the varying strength of people's powers of intuition. However, they did exaggerate the role of intuition, assuming that all knowledge was obtained by that means and that the basis of all acquired (i.e. empirical) knowledge was unacquired (intuitive) knowledge.

A key component of the Peripatetics' philosophical system was their practical or civil philosophy, which al-Fārābī divided into ethics and political philosophy, whereas Ibn Sīnā's categories were ethics, stewardship and civil politics. They endeavoured to prove that society and social life had their origin in people's needs in respect of the production of material wealth. They considered that, individually, people were unable to produce all of the necessities of life: they could only do so by joining forces; and society was a coming-together of individuals for the purpose of producing material wealth. Of great significance was the criticism levelled by them against those theories which likened human society to a community of animals in which a fierce struggle was waged for existence. Against the theory of a brutish, cut-throat struggle for existence, they set the idea of mutual aid and fellowship, holding that 'the entire world will be virtuous if its peoples help one another to attain happiness'. Both rejected slavery and wars of conquest; they advocated provision for the maintenance of the disabled as well as state education and instruction for the younger generation, irrespective of the social status of its various strata.[6]

The most important ideas advanced by the Peripatetics in the field of ethics were the freedom of human will and the variability of customs and manners. The development of ethics in the tenth and eleventh centuries also owed much to Ibn Miskawayh (d. 1030), the author of *Jāwīdhān khirad* [Eternal Reason] and the *Tahdhīb al-akhlāq* [The Perfection of Morals].

The tradition of the philosophy of the Peripatetics was upheld after al-Fārābī and Ibn Sīnā by such thinkers as ʿUmar Khayyām (*c.* 1048–1123) and Nasīr al-Dīn al-Tūsī, who defended the doctrine against the onslaughts of al-Ghazālī and Fakhr al-Dīn al-Rāzī, and also by Qutb al-Dīn al-Shīrāzī, Bābā Afdal Kāshānī, Kātibī (thirteenth century), Qutb al-Dīn al-Rāzī (fourteenth century) and Jalāl al-Dīn al-Dawānī (fifteenth century).

6. Madkour, 1934; Gutas, 1988; Netton, 1992.

PHILOSOPHICAL PROBLEMS

A series of key questions in natural philosophy were raised and discussed in the works of the Materialists, and in those of the Peripatetics and a number of other scholars, including Abū Rayhān Muhammad al-Bīrūni (973–1048). Among these questions were:

(a) recognition of the universal material operation of cause and effect and the investigation of all phenomena without exception from that standpoint: the transformation of one element into another, the nature of light and heat, changes in the earth's surface and in the living organism, the nature of motion, space and time, earthquakes and fountains, lunar and solar eclipses, the causes of life and death, health and illness, sickness of the body and of the mind;

(b) recognition of the idea of mutability, which was demonstrated by the transmutation of the elements, the evolution of the earth's crust, changes in the vital fluids and their relationships within the living organism, changes in human nature according to living conditions and age; and

(c) a realistic treatment of the relation between the spiritual and the material (the psychic and the somatic) in which the locus of spiritual forces and the source of their action was held to be the brain and, hence, the psychic activity of the cerebrum.

To support the idea that the psychic processes had their seat in the cerebrum, the natural philosophers formulated and comprehensively argued the thesis that psychic states were dependent on physiological activity and the physiological condition of the brain: psychological health was a consequence of the brain's physical perfection; psychological ailments were caused by its physical indisposition. Although the natural philosophers recognized the dependence of the psychic on the physical, they did not deny the action of the former on the latter through the operation of an inverse effect. These ideas, which were expounded in the medical works of Abū Bakr al-Rāzi and Ibn Sīnā, were subsequently expanded in the writings of Muhammad Jurjānī (twelfth century), the author of the nine-volume *Dhakhīra-yi Khwārazmshāhī* [Repository of the Khwarazm Shahs], Mahmūd al-Jaghmīnī (thirteenth century), author of *The Little Canon*, and in the little-studied medical works of Nasīr al-Dīn al-Tūsī (see further in Chapter 12).

PHILOSOPHICAL *KALĀM*

Kalām, which came into being by the ninth century to defend Islam against various heresies, passed through several phases: Mu[c]tazilite, Ash[c]arite and philosophical *kalām*. Among those who made major contributions to its development in the countries of eastern Persia and Central Asia were al-Bāqillānī,

al-Juwaynī, al-Ghazālī, al-Māturidī al-Samarqandī, Fakhr al-Dīn al-Rāzī and al-Taftazānī.[7]

Philosophical *kalām* largely developed in order to combat eastern Peripatetic philosophy and what remained of Zurvanism and the philosophy of the Materialists. The founders of philosophical *kalām*, particularly al-Ghazālī, were especially aroused by the idea of the co-eternal nature of God and the world which was espoused by the Peripatetics, seeing in it an element of dualism which undermined the basis of monotheism. Al-Ghazālī also rejected the idea because it contradicted the fundamental doctrine of religion and *kalām*, according to which God had created the world out of nothing, the views of the Peripatetics being contrary to all religion.

The philosophizing *mutakallims* also discounted the theory of emanations proposed by the Muslim Peripatetics which, in their view, led only to an allegorical acknowledgement of God, subjecting His action to the law of necessity. It denied the omnipotence and omniscience of the Creator and put him in the position of a dead man, knowing nothing of what is happening in the world. Al-Ghazālī and his companions and followers also rejected the theory of causality, which was a fundamental feature of the philosophy of the Zurvanists, the eastern Peripatetics and the natural philosophers. The *mutakallims* believed that the refutation of the principle of causality would help to prove the existence of miracles. Al-Ghazālī's followers, and in particular Fakhr al-Dīn al-Rāzī, Muhammad al-Shahrastānī (twelfth century) and al-Taftazānī, considered the theory of hylomorphism advanced by the Peripatetics as unfounded, and countered it with the doctrine of indivisible ethereal particles (atoms), constantly perishing and being created anew by the Creator.

The epistemology of the philosophizing *mutakallims* was fraught with inconsistencies and contradictions. In some of their works they asserted that the world is knowable and recognized the cognitive force of human cognitive faculties. Elsewhere, they questioned whether the world is knowable or denied that it can be discovered by means of the senses and reason. Scepticism and agnosticism not infrequently led the *mutakallims* to intuitionism, from which standpoint they criticized the fundamental principle in the gnosiology of the Muslim Peripatetics, the doctrine according to which cognition was the reflection of the image of things in the senses and the mind.

The philosophizing *mutakallims* were also concerned with the problems of social philosophy. The following were the main tenets of their social teachings as expounded by al-Ghazālī: (a) society, like the world as a whole, is the fruit of divine wisdom, which predetermines all of its structures and institutions; (b) the basis for the existence of society is the need for its members to help each other in order to enable all to acquire the means of subsistence; (c) the

7. *EI*[2], 'ʿIlm al-kalām' (L. Gardet).

main regulators of life in society are religion and politics, which are closely related; and (d) the best form of state structure is the theocratic state. The well-being and prosperity of the state depend on the ruler, the vizier and the senior officials, and the bureaucratic and military classes are the two pillars of the throne.

SUFISM

Sufism, which emerged during the eighth century as a movement of ascetics, subsequently developed considerably. By the thirteenth century, a variety of Sufi orders and tendencies had sprung up and Sufi doctrine was developed comprehensively in the works of al-Kalābadhī, ᶜAbd Allāh al-Ansārī, al-Qushayrī, al-Ghazālī, Sanā'ī, Farīd al-Dīn ᶜAṭṭār, Jalāl al-Dīn Rūmī, ᶜAlī al-Hamadānī, ᶜAbd al-Rahmān Jāmī and others.

A basic tenet of Sufism is that the physical world was created by God through a number of levels of emanation in which the divine spirit gradually acquired substance. This spirit strives constantly to free itself from its material shackles and return to its eternal source, God, who, according to the doctrine of the Sufis, is the sole real essence. Like the world, human beings too are made of spiritual essences but are unable, by virtue of their earthly existence, to achieve direct communion with the deity. The aim of human existence must therefore be to annihilate the transient self and unite with the divine being. The Sufis consider that to attain this goal it is necessary to pass through certain stages. The first stage, that of the *sharīᶜa*, is obligatory for all Muslims, including the Sufis. The Sufi is required to demonstrate obedience to the *sharīᶜa* in all external matters, but internally remains free from all but God and submission to Him. The individual reaching the stage of *haqīqa* (divine truth) is so absorbed by the goal of achieving union with the divine being that his external surroundings lose all meaning. At the stage of *maᶜrifa* (gnosis), he experiences divine truth and acquires wisdom. On achieving *haqīqa*, the seeker loses his individual self and enters into communion with God, merging with and losing his self in the deity. However, *fanā'* (annihilation) does not constitute the end point of human existence for many Sufi theorists but rather the beginning of *baqā'* (eternity), since the individual, on experiencing the loss of the transient self, is immersed in the sea of the Absolute and thereby acquires a clear sense of being eternal like the divine essence. In that sense, *haqīqa* constitutes real, true existence for the Sufis, the state in which they apprehend their participation in the divine essence. Sufi thinkers who engage in philosophizing have developed their own theory of how knowledge can be acquired of God and of the world. God can only be apprehended by means of intuition, inspiration, revelation, illumination and ecstatic experiences, and the world by the senses and the mind.[8]

8. *EI*², 'Taṣawwuf. 1' (L. Massignon and B. Reinert).

ISMAᶜILISM AND ITS COSMOLOGY

The religious and philosophical doctrine of Ismaᶜilism, which came into being in the eighth century, was developed in the works of three thinkers from the eastern Iranian world, Abū Hātim al-Rāzī (ninth century), Abū Yaᶜqūb al-Sijistānī (tenth century) and Nāsir-i Khusraw Qubādiyānī (1004–80). The philosophy of Ismaᶜilism was based on the Peripatetic conception of the relation between Necessary and Contingent Being and the Neoplatonist theory of emanations, according to which the Creator created universal reason; universal reason generated the universal soul and the universal soul engendered primary matter, the elementary forms of which were fire, air, earth and water. Various combinations of these elements gave rise to the world of minerals, plants, animals and humanity, to which corresponded mineral, plant, animal and human souls. The human soul, as the highest form of soul, encompassed the lower forms but could not be reduced to them: it was eternal. Many Ismaᶜili philosophers categorically rejected the migration of souls into other bodies.

Abū Hātim al-Rāzī and Nāsir-i Khusraw were quite firm in their opposition to the views of the Materialists and the Peripatetics in respect of the eternal nature of matter, space and time, and argued that the world was created within time. However, they were not unsympathetic to the idea of the mutability of the material world, the infinite nature of space and time and the changing state of objects and processes.

In their doctrine of cognition, the Ismaᶜili philosophers admitted the cognoscibility of the world and considered that in the material world, starting with the heavens and the planets, everything is determinable and all earthly things and minerals, plants and animals in all their variety may be determined and known by man. The world was knowable through the senses and the mind. Science, as the result of knowledge, was the comprehension of things as they were in reality. The most important feature of Nāsir-i Khusraw's epistemology was his recognition of the infinite nature of the cognitive process. He wrote:

> It is unthinkable that the human soul should become incapable of absorbing more knowledge, for its substance is such that there is no end to its ability to perceive all properties. Everything that is known helps the soul to know other things and does not hold it back. It is therefore impossible that human beings should reach a state in which they have nothing further to learn.

In spite of this, he took the view that cognition was a particle of divine light implanted in man by God.

The philosophy of the Ismaᶜilis subsequently found expression in Nizārī poetry (thirteenth century) and in such anonymous treatises and books as the *Risāla-yi ᶜAqā'id Ismāᶜīliyya* [Treatise on the Tenets of Ismaᶜilism], the *Kalām-i pīr* [Sayings of the Mentor] and the *Sahīfa* [The Writing Leaf], and in the work of Fidā'ī, the *Kitāb bi-Hidāyat al-mu'minīn al-tālibīn* [Book with Guidance

for the Believers Seeking Knowledge]. It should be noted that the philosophical views of Isma^cili thinkers were not uniform. In particular, Abū Ya^cqūb al-Sijistānī, unlike Nāsir-i Khusraw, admitted the eternal nature of the world and its attributes, and later Isma^cili treatises recognized metempsychosis (the transmigration of the soul), which had been also rejected by Khusraw. This illustrates not only the existence of different groupings within Isma^cilism but also its historical evolution.[9]

ILLUMINATIVE PHILOSOPHY

With the development of indigenous forms of economic and political sovereignty in the countries of Central Asia, the revival of pre-Islamic strains of thought appears. Thus Shihāb al-Dīn Yahyā al-Suhrawardī (executed for his beliefs in 1185) combined ancient Iranian, Platonic and certain Peripatetic conceptions with an admixture of Islamic ideas, producing a distinctive, original doctrine which he himself referred to as Illuminative philosophy (*hikmat-i Ishrāq*).

Expounding the essence of his doctrine in the work entitled *Hikmat al-Ishrāq* [The Philosophy of Illuminationism], al-Suhrawardī emphasized that his philosophy was a form of wisdom based on inspiration, experience, revelation and the direct perception of the truth, and not on proof and argument. In this it differed from apodeictic philosophy, which is built entirely on proof and argument. Al-Suhrawardī did not reject this last, since it was certainly capable of revealing the substance and secrets of the material world, and was therefore the first essential stage in the science of philosophy. But it was quite unable to distil the essence and divine the symbols of the supernatural world, and the disclosure of these was the prerogative of Illuminationism. The true philosopher, who laid claim to the title of God's representative on earth, was required to be equally well versed in apodeictic philosophy and in the philosophy of *Ishrāq*. 'The surest seekers of divine truth', wrote al-Suhrawardī, 'are those who seek both divine and apodeictic wisdom.' This is probably why he included in his system of Illuminative philosophy a synthesis of certain tenets of Aristotelian/Avicennan apodeictic philosophy.

At the heart of his ontology was the theory that the foundation and origin of being was the non-material, absolute, eternal, self-sufficient and necessary light of lights. From that source emanated successively: (a) the proximate (first) light; (b) celestial inextinguishable lights; (c) earthly inextinguishable lights; (d) abstract lights governing material existents; (e) heavenly independent and dependent material existents (respectively, spheres and stars); and (f) earthly material existents (matter, bodies, elements: fire, air, earth and water).

9. Nasr, 1977; Stern, 1983; *EI*², 'Ismā^cīliyya' (W. Madelung).

In accordance with these concepts, al-Suhrawardī divided the world into the realm of spiritual lights and that of material darkness, the former being unchanging and eternal and the latter a world of movement, change, origination and annihilation. It is thus not difficult to conclude that he essentially revived a Mazdaist-Platonic and Neoplatonic philosophy. Further evidence of this view is provided by his defence of Plato's theory of ideas, his demolition of the Peripatetic critique of that theory and his rejection of Aristotelian-Avicennan hylomorphism and the atomism of Democritus.

However, the old doctrines could not be revived in their pure state in the new conditions. Al-Suhrawardī therefore attempted to clothe Mazdaist and Platonic ideas in Islamic garb in order to obtain contemporary legitimacy for his doctrine, emphasizing that God was referred to in the Qur'an as the light of heaven and earth. But neither this nor his effort to distance himself from the dualism of light and darkness associated with the Magians and the Manichaeans could save him from the accusation of heresy and eventual martyrdom. Nevertheless, his influence on the subsequent development of philosophy in the countries of Central Asia was considerable and is plainly visible in the works of such authors as Qutb al-Dīn Shīrāzī, Lāhijī, ʿAzīz Nasafī, Mīr Dāmād, Hādī Sabzawārī and Sadr al-Dīn Shīrāzī.[10]

10. Ziai, 1990; *EI*², 'Is͟hrāḳ', 'Is͟hrāḳiyyūn' (R. Arnaldez).

6

MATHEMATICAL SCIENCES

Q. Mushtaq and J. L. Berggren

Part One

INTRODUCTION: THE MATHEMATICIANS AND THEIR HERITAGE

(Q. Mushtaq)

One distinctive feature of the formation of the early Arab caliphate's culture was its inheritance of heterogenous cultural traditions. The caliphate embraced several centres of ancient Eastern civilizations such as Egypt, Mesopotamia, Iran, Khurasan and Transoxania, many of whose long cultural traditions were directly or indirectly connected with the culture of ancient Greece.

The successors of the Umayyads, the Arab ʿAbbasid caliphs, were the catalysts in the Muslim cultivation of the arts and sciences, and turned Baghdad into a centre of excellence for the learned and wise within the caliphal lands. Caliphs like Hārūn al-Rashīd (786–809) and al-Ma'mūn (813–33) were keen patrons of the learned at their courts. They made efforts to obtain the best philosophical and scientific texts of ancient Greece and India in Greek, Syriac, Middle Persian and Sanskrit. These were translated into Arabic, sometimes via Syriac, at Baghdad by competent scholars, a process centred on the famous Bayt al-Hikma (House of Wisdom) in Baghdad and which, by the time of al-Ma'mūn, had become a well-organized activity of unprecedented scope and vigour. The translation work which began in the second half of the eighth century was practically over by the end of the tenth century, however, never to be taken up again on any significant scale in the Islamic Middle Ages.

A brief look at a few of the translators reveals the variety of their ethnic and religious backgrounds. Some were Persian, like the astrologer Ibn Nāwbakht, who translated from Pahlavi into Arabic. Al-Fazārī, who worked with a scholar from Sind on the translation of the astronomical work, the

Sindhind (from Sanskrit, 'perfected'), was of Arab descent. The most active translator of medical works in Greek and Syriac, the celebrated Hunayn b. Is'hāq (d. 873), was a Nestorian Christian from Hira. His son and pupil Is'hāq (d. 911), who like his father knew Greek, translated philosophical works of Aristotle, the *Elements* of Euclid and Ptolemy's *Almagest*. Thābit b. Qūrrā (d. 901), a member of the pagan Sabian community at Harran, worked on the translation of mathematical works from Greek.

Some eminent mathematicians

While practically every branch of intellectual thought was pursued during the 'Age of Achievement', the importance attached to the mathematical and astronomical sciences was notable. Among the eminent mathematical scientists who came from or worked in eastern Persia or Central Asia were Muhammad b. Mūsā al-Khwārazmī, who flourished at the ʿAbbasid court of Baghdad; Abu 'l-Wafā' Muhammad al-Būzajānī, who was patronized by the Buyids; Abū Mahmūd from Khujand; Abū Rayhān al-Bīrūnī, who flourished under the Ghaznavids; ʿUmar Khayyām, who became well known under the Seljuqs; Abū ʿAlī Ibn Sīnā; and Nasīr al-Dīn al-Tūsi. Among the others were Abu 'l-ʿAbbās al-Farghānī, al-Hāzim, al-Karajī, Qutb al-Dīn al-Shirāzī, al-Kāshī, Kamāl al-Dīn al-Fārsī and Abū Sāqr al-Qabīsī.

MUHAMMAD B. MŪSĀ AL-KHWĀRAZMĪ

It is Muhammad b. Mūsā al-Khwārazmī (*fl.* first half of ninth century) who is credited, in his treatise *al-Mukhtasar fī hisāb al-jabr wa 'l-muqābala* [The Condensed Book on Calculations Involving Restoration and Confrontation], with the creation of algebra as we know it in the modern sense.[1] A frequenter of the Bayt al-Hikma established by al-Ma'mūn, he composed the oldest astronomical tables and the oldest astronomical work, which was translated into Latin in medieval Europe. His work focused on lunar anomalies, eclipses, parallaxes, the inclination of the elliptic length of the tropic and on the sidereal year. He was the first scholar in history to discard the idea of the classical conception of the static universe and he strongly upheld the idea of a dynamic universe.

ABU 'L-ʿABBĀS AL-FARGHĀNĪ

Abu 'l-ʿAbbās al-Farghānī (d. 860), known as Alfraganus in the West, supervised the erection of a Nilometer at al-Fustāt in Egypt and measured the diameter of the earth and other planets. He also accurately calculated the distances

1. Al-Khwārazmī, 1939.

between the planets. His *Jawāmiᶜ ᶜilm al-nujūm* [Compendium of Astronomy] was highly valued and remained in use throughout Europe for several centuries, most of his works being transmitted to Europe through Latin and Hebrew.

Abu 'l-Wafā' al-Būzajānī

It was Abu 'l-Wafā' Muhammad al-Būzajānī (940–98), from Khurasan, who gave the world the first known tables of tangents calculated for every 15'. He was the first to show the generality of the sine theorem relative to triangles. He and other mathematicians formulated and successfully developed a branch of geometry which dealt with problems leading to algebraic equations of the third and higher degrees. This correlation of geometry with algebra, and the geometric method of solving algebraic equations, anticipated Descartes' discovery of analytical geometry in the seventeenth century (see further, Part Two below).

Abū Rayhān al-Bīrūnī

The Khwarazmian Abū Rayhān Muhammad al-Bīrūnī (973–1048) introduced the idea of a 'function' which describes the correspondence of two numbers and the dependence of one number on the other, a concept which has become one of the most important ideas in mathematics. He made an accurate determination of specific gravities. In his *al-Qānūn al-Masᶜūdī* [Canon of (Sultan) Masᶜūd], he discussed for the first time the question of whether the earth rotates around its axis and gave the true explanation that the rising and setting of the heavenly bodies is a result of the rotation of the earth; he thus pointed to the error in the geocentric conception of the solar system.

Abū ᶜAlī Ibn Sīnā

Abū ᶜAlī Ibn Sīnā (*c.* 980–1037), known to the West as Avicenna, was not only a great physician, a philosopher and a philologist, but also a mathematician. He devoted four books of his *Kitāb al-Shifā'* [Book of Healing] to the mathematical sciences, thus confirming the mathematical orientation that had characterized Hellenistic-Islamic philosophy from its beginning. Unlike his predecessors, al-Kindī and al-Farābī, Ibn Sīnā no longer conceived of mathematics as an activity in some way isolated from philosophy but rather as an integral part of a philosophical synthesis. He renounced the traditional language of arithmetic and took up that of the algebraists to explain the successive powers of an integer. He took up the theorem of Thābit b. Qūrrā on amicable numbers and several problems on congruences. In his *Shifā'* he gave the example of the first case of Fermat's conjecture, also treated by at least two other mathematicians of the tenth century, al-Khujandī and al-Khāzin. Ibn Sīnā also wrote on whole or fractional, rational or algebraic irrational numbers. He gave a system of

classification of arithmetic, *hisāb* (calculation) and algebra different from the Graeco-Hellenistic one. He threw new light on ontology and on logic, considering the latter as the science of truth concerning the studies of propositional forms and the process of reasoning. He brought a significant improvement to all parts of Aristotle's logic, and distinguished between conjunctive-conditionals and disjunctive-conditionals. He made a great contribution to the theory of propositions. The legacy of Ibn Sīnā is considerable. The Persian scholar Saᶜid Nafisī calculated that he wrote 456 works in Arabic and 23 in Persian, but those genuinely attributable to him must be less.[2] According to the library catalogues of different countries, 160 of his works are preserved today.

ᶜUmar Khayyām

In the Seljuq period, ᶜUmar (or Omar) Khayyām of Nishapur (*c.* 1048–1123) and ᶜAbd al-Rahmān al-Khāzinī were the leading scientists who conducted astronomical observations. Their works resulted in the adaptation of a new era, known as the *Jalālī* era. So perfect was this work that there is an error of only one day in 5,000 years. ᶜUmar Khayyām was at the same time a great mathematician and a distinguished philosopher and astronomer; whilst a philosopher, he was a follower of Ibn Sīnā, whom he interpreted with keen rationalism. His *Algebra* contains equations of the third degree. Like his Arab predecessors, he provided both arithmetic and geometric solutions for quadratic equations. For cubic equations, he was the first to classify them systematically and to obtain a root as the abscissa of a point of intersection of a circle and a rectangular parabola, or of two rectangular hyperbolas. He was also the first to solve geometrically every type of cubic equation that possesses a positive root, and was aware of the trend of finding algebraic solutions of the cubic equation, whose solution in its generality was found only in the sixteenth century.

ᶜUmar Khayyām seems actually to have studied numerical solutions, specifically of equations of the form $x^n = a$ (where n is a positive integer). The case for $n = 2$ was also known to Euclid, but any evidence of the generalization of the law for other values of n first appears, it would seem, in ᶜUmar Khayyām's *Algebra*. He did not give the law, but he asserted that he could find the 4th, 5th, 6th and higher roots of numbers by a law which he had discovered and which did not depend upon geometric figures and that he had set this forth in another work, now lost. Furthermore, he was the first to mention the later Italian mathematician Cardano's 13 forms of the cubic which have positive roots. He was the originator of some of the basic ideas underlying what is now known as non-Euclidian theory of parallel lines, at least so far as it antedates the work of Girolamo Saccheri, and his suggested theorems and proofs of Euclid's fifth

2. Asimov, 1986, pp. 220–43.

postulate are essentially the same as the first few of Saccheri's (see further in Part Two below).

Nasīr al-Dīn al-Tūsī

Nasīr al-Dīn al-Tūsī (d. 1274), much influenced by ʿUmar Khayyām's work, continued efforts to prove the parallel postulate. His writings influenced Saccheri's work on non-Euclidean geometry, *Euclides ab omni naevo rindicatus* (1733), which is generally considered as the first step in a non-Euclidean geometry. Al-Tūsī's views also influenced John Wallis (seventeenth century), who translated his works into Latin, published them and used them in his famous Geometrical Lectures at Oxford.

Ahmad al-Ūqlīdisī and Jamshīd al-Kāshī

The Muslims also made an important contribution to the history of decimal fractions. The first writer known to have used decimal fractions was the Syrian Ahmad b. Ibrāhim al-Ūqlīdisī (*fl.* mid-tenth century).[3] All that is known about the author is his *Kitāb al-Fusūl fi 'l-hisāb al-hindī* [Book of Chapters on the Indian Numerals], in which he uses decimal fractions, appreciates the importance of a decimal sign, and suggests one, that is, the point /./. The next writer known to have used decimal fractions was the Khurasanian al-Nasāwī, who flourished in the first half of the eleventh century. (On the continued use of the sexagesimal system, see Part Two, below.)

In Mongol times the intellectual life of Central Asia and eastern Persia suffered a regression. There was, however, a fresh spurt of intellectual activity under the Timurids, who were in power from about the middle of the fourteenth century until the beginning of the sixteenth century. It was during the reign of Timur's grandson Ulugh Beg (1394–1449) that the study of astronomy especially reached new heights at Samarkand and that the noted Persian mathematician Jamshīd b. Masʿūd al-Kāshī (d. 1429) flourished under his patronage. Ulugh Beg founded in his capital an imposing observatory, which made this ancient Central Asian city a noted centre for astronomy. He was also an astronomer in his own right, being one of the first to advocate and build permanently mounted astronomical instruments. His catalogue of 1,018 stars, written in 1437, was the only such undertaking carried out between the time of Claudius Ptolemy (*fl.* mid-second century) and Tycho Brahé (d. 1601).[4] In this new catalogue, the positions were given to the nearest minute of arc, and attained a high degree of precision for the period.

3. Saidan, 1966, p. 475.
4. Krisciunas, 1992, pp. 3–6.

Jamshīd al-Kāshī wrote at Samarkand his *Miftāh al-hisāb* [The Key to Arithmetic], a comprehensive, clearly written and well-arranged handbook for merchants, clerks, surveyors and theoretical astronomers which is also an important work in the history of numbers, especially for its full and systematic investigation of decimal fractions. Al-Kāshī built up the scale of decimal fractions by analogy with that of the sexagesimals. He realized the importance of these fractions more than his predecessor the Syrian al-Ūqlīdisī had done, claiming them as his own invention and giving them a special name, *al-kusūr al-aᶜshāriyya*. Muslim mathematicians, who had been using sexagesimals in their large-scale computations, began to use decimals after al-Kāshī's time. Through the use of decimals, al-Kāshī's approximation of π was more accurate than any of the values given by his predecessors. He was also the first to solve the binomial later known as Newton's, with its solution in this same treatise on arithmetic, and he further wrote *al-Risāla al-muhītiyya* [The All-Embracing Treatise on the Circumference], based on the sexagesimal system.

Nevertheless, the Central Asian cities never quite regained their pre-Mongol intellectual activity and excellence. This is related to the decline of the Muslims as a whole in scientific intellectual development. One factor was the decline of curiosity on the part of individuals, and here the victory of the Ashᶜarites may have had serious consequences for Muslim civilization since it led to the development of *taqlīd* (the unthinking acceptance of tradition in religion and other spheres), which was the antithesis of *ijtihād* (the exertion of effort in resolving religious and legal problems), a process which now became regarded as closed. Hence learned scholars were gradually forced to concede that it was no longer allowed for anyone to exercise independent reasoning in matters of religion.

Part Two

THE MATHEMATICAL SCIENCES

(J. L. Berggren)

Mathematics in medieval Islam was international in its scope and in its intended audience. Its mathematicians drew on sources that ranged widely in time and space, and both eastern and western parts of the medieval Islamic world made important contributions to the various divisions of the mathematical sciences. Thus this brief history will of necessity trespass into other regions in its account of the conditions, consequences and achievements of Central Asian mathematics.

Arithmetic

The earliest treatise on arithmetic known to us from the Islamic world is that of Abū Jaᶜfar Muhammad b. Mūsā al-Khwārazmī. He worked in Baghdad in the first half of the ninth century, but his ethnic name Khwārazmī points to at least his ancestors' origin in the region between the lower courses of the Amu Darya (Oxus) and Syr Darya (Jaxartes) rivers. His work is only extant in a Latin translation from the twelfth century,[5] and, indeed, it was the earliest Arabic arithmetic to appear in Latin. Because the work introduced the Hindu decimal positional system to both the Islamic and Latin worlds, it has, as A. Yuschkevitch observes, 'not only for mathematics, but for the whole cultural development of the world . . . a great significance'.[6] And, via its Latin offspring, al-Khwārazmī's work has left a lasting impression on those Western languages in which the word for any systematic method of computing (as in the English 'algorithm') is derived from the Latin form of al-Khwārazmī's name, 'algorismi'.

The importance of al-Khwārazmī's book lies in its being the first of a series of works developing the base ten positional system which the Islamic world had inherited from the Indians. The end product of the tradition that al-Khwārazmī's work originated may be seen in the work of Jamshīd al-Kāshī (see Part One, above), whose *Miftāh al-hisāb* [The Key to Arithmetic] treats of arithmetic, algebra and mensuration, and gives instruction on the extraction of roots of arbitrary orders, the use of the table of binomial coefficients[7] (known today as Pascal's triangle) and decimal fractions.

All of these developments, however, took place after al-Khwārazmī. Thus decimal fractions appear in the first extant work of Arabic arithmetic, that of al-Ūqlīdisī in the tenth century (see Part One, above), and in the work of al-Samaw'al b. Yahyā in the twelfth century. But it is not known what any of these writers owed to the other, and al-Kāshī's claim to have invented decimal fractions must be taken as representing his honest belief. Perhaps[8] al-Kāshī's familiarity with the Chinese astronomers' system of measuring time in days and ten-thousandths of a day (called *fên*) inspired his invention of decimal fractions, which he used, among other purposes, for displaying the results of his calculation of π to 16 decimal places.[9]

5. See Sezgin, 1974, p. 238; one suggestion has been that it was called the *Kitāb al-Jamᶜ wa 'l-tafrīq bi-hisāb al-Hind* [Book of Addition and Substraction According to the Hindu System of Calculation]. Until recently our knowledge of this treatise has been confined to one manuscript, in Cambridge, United Kingdom, but now a second manuscript has been found in New York, one which differs from that in Cambridge in several ways.
6. Yuschkevitch (quoted in Sezgin, 1974, p. 238).
7. It appears that this was first discovered by al-Karajī, *c.* A.D. 1000.
8. See Kennedy, 1964.
9. What was remarkable was not only the number of places but the fact that al-Kāshī was able to control the round-off errors in the calculation so that he knew the accuracy of the results of his calculations.

Al-Kāshī's *Miftāh* was held in such high regard that the Persian scholar Muhammad Tāhir Tabrisī informs us that for two centuries after its composition it remained the standard arithmetic text in Persian *madrasas* (colleges for higher religious studies). And in a preface to his astronomical tables, written some eight years after al-Kāshī's death, Ulugh Beg, to whom al-Kāshī dedicated this work, refers to him as 'the admirable master, known among the famous of this world, who had mastered and completed the sciences of the ancients and who could solve the most difficult questions'.

However, the works both of al-Khwārazmī and of al-Kāshī illustrate the fact that by no means all arithmetic in the Islamic world was based on the decimal system, for both also treat the sexagesimal system, a positional system based on 60 rather than 10. And although decimal fractions were an Islamic contribution, sexagesimal fractions had been used since at least the second millennium B.C. Knowledge of the sexagesimal system may have come to medieval Islam through Greek or Sanskrit astronomical works,[10] and a standard name for the system in the Islamic world was 'the astronomers' arithmetic'.[11] A systematic presentation of the system is found in one section of the *Usūl hisāb al-Hind* [Principles of Hindu Reckoning] by Kūshyār b. Labbān al-Jīlī (*fl.* second half of tenth century).[12] However, despite the existence of sexagesimal multiplication tables,[13] multiplication and division in the sexagesimal system were often accomplished by converting the numbers to a decimal representation, performing the operations there, and then converting the answers back to the base 60, a procedure referred to as 'levelling'.

The use of the base 60 for dealing with fractions, found in the Islamic world as early as al-Khwārazmī, also occurs in the work of Abu 'l-Wafā' al-Būzajānī. In his *Kitāb al-Manāzil fīmā yahtāju ilayhi al-kuttāb wa 'l-ʿummāl min ʿilm al-hisāb* [Book of the Stages Concerning What Secretaries and Financial Officials Need in the Way of Arithmetic], Abu 'l-Wafā' tells how to use the base 60 to deal with fractions. It has in fact survived until today in our writing that a certain angle is, e.g., 127°30'41".[14] According to A. S. Saidan, the base 60 served in commercial computations much the same purpose as our percentages.[15]

10. The system was widely used in Greek astronomical texts known in the Islamic cultural domains, but al-Khwārazmī in his *Usūl hisāb al-Hind* attributes it to the Hindus.
11. It is so described in the *Miftāh* of al-Kāshī, who devotes *Maqāla* III of that work to the topic.
12. The circulation of texts and ideas around Asia is illustrated by the fact that his *zīj* (astronomical handbook), the *Madkhal ilā ʿilm al-nujūm,* extant in both Arabic and Persian, was early translated into Chinese.
13. Referred to, but not present, in Kūshyār's work. See also King, 1974*a*; 1974*b*; 1979.
14. A similar use of sexagesimals for representing fractions is found in the portion of Kūshyār's work dealing with decimal arithmetic.
15. Saidan, 1974, pp. 364–75.

With al-Būzajānī's work we come to the third major system of arithmetic in the Islamic world, that of finger reckoning. In medieval Islam this was also known as the 'system of the Arabs and the Byzantines'. However that may be, the Roman biographer Plutarch (46–127) reports that a system of finger reckoning was known to the Persians, and the fourteenth-century Persian historian and geographer Hamdallāh Mustawfī credits Ibn Sīnā with the invention of a system of calculation by this method. These data suggest that this system had many variants, but the general principle of all variants was that the numerals were represented by bending the fingers into certain standard positions in order to retain the results of intermediate stages in mental calculations. Unlike the Hindu system, whose operations were performed with a finger or stylus on a dust board or (later) on paper with a pen, the fact that operations in the system of finger arithmetic were performed mentally led to considerable attention being paid to computational short cuts.[16]

Al-Būzajānī may have addressed his work to secretaries and financial officials, but computation was also used by scientists,[17] and noteworthy examples of scientific computing are the sophisticated algorithms for solving equations or for computing corrections to a quantity which is initially only calculated very roughly. Two examples of the former associated with Central Asian mathematicians are the method of Habash al-Hāsib for the iterative solution of $t = \theta - m{\cdot}\sin\theta$ for $\theta = \theta(t)$, an equation known today as Kepler's equation,[18] and al-Kāshī's iterative method for solving cubic equations arising from the problem of trisecting angles.[19] An example of the latter is the method of calculating the moment of true conjunction of the sun and moon, starting with a mean conjunction of these two luminaries. E. S. Kennedy describes such a method used in the Chinese-Uighur calendar and found in the *Zīj-i Khāqānī* [Royal Astronomical Tables] of al-Kāshī.[20]

A notable development of the iterative techniques for solving equations is found in the works of Sharaf al-Dīn al-Tūsī (d. *c.* 1213), whose *On Equations* gives not only methods based on numerical tableaux for solving cubic equations, but also arguments for the validity of these methods.[21] Al-Tūsī's mastery of both ancient mathematics and that of his own time allowed him to derive conditions for the solvability of cubic equations which we would most naturally verify today by means of the differential calculus but for which he probably used a sophisticated mastery of Euclidean geometric algebra.[22]

16. See, for example, Saidan, 1974, p. 372.
17. Abu 'l-Wafā' for example, was an astronomer, and suggested taking the radius in computing the Sine function equal to 1.
18. See Kennedy et al., 1983, pp. 513–16.
19. See Aaboe, 1954, pp. 24–9.
20. Kennedy, 1964, pp. 435–43.
21. See Rashed, 1985.
22. See Hogendijk, 1989, pp. 69–85; Berggren, 1990, pp. 304–9.

Of course, by 'arithmetic' the Greeks meant the theory of numbers, something the Arabic writers called either 'the science of numbers' (a direct translation of the Greek) or (e.g. al-Fārābī) 'the theoretical science of numbers'. The Islamic tradition in this area[23] was based on the number-theoretic books of Euclid's *Elements* (Books VII–IX) and that treasury of Pythagorean number lore, Nicomachus' *Introduction to Arithmetic*; one of the earliest Islamic contributions to number theory was to a favourite topic of Nicomachus. This was Thābit b. Qurra's discovery, in the late ninth century, of a condition for each of two numbers to be the sum of the proper divisors of the other.[24] Although Thābit's theorem was not easy to apply, Kamāl al-Dīn al-Fārisī in the thirteenth century was able to find a new pair of amicable numbers (17,296 and 18,416), a pair rediscovered by Pierre de Fermat in the seventeenth century. Al-Fārisī's work was conducted in the context of a systematic study of the sum of divisors of a number.

At the same time, there was a strong tradition of Diophantine analysis, carried on both in algebra and in number-theoretical investigations of questions which would arise on reading Diophantus' *Arithmetica*. An example of this latter is the proof of Abū Jaᶜfar al-Khāzin al-Khūrasānī (d. *c.* 965) that, given a whole number a, the equations $x^2 + a = m^2$ and $x^2 - a = n^2$ are simultaneously solvable for whole numbers x, m and n if and only if a is twice the product of two whole numbers whose squares add up to a square. In such a case we may take x^2 to be that square. According to him, Abū Maḥmūd Khujandī (from Khujand, in Transoxania) gave an incorrect proof of the impossibility of solving the first case of what was to become Fermat's conjecture: for $n > 2$ there are no whole-number solutions to $x^n + y^n = z^n$, by no means the last incorrect proof associated with Fermat's conjecture! In the twelfth century Ibn al-Khawwām stated the same for the next case, namely $x^4 + y^4 = z^4$, but neither he nor his commentator Kamāl al-Dīn al-Fārisī proved it.

Finally, on the subject of arithmetic, one measure of the progress made in the conception of numbers which occurred from the ninth century onwards is the arithmetic treatment of Euclid's Book X, a work devoted to a classification of quadratic irrationals considered as geometric magnitudes. Beginning with Abū ᶜAbdallāh Muḥammad al-Māhānī (*fl.* mid-ninth century), one finds developing an Islamic tradition of treating irrational magnitudes as irrational numbers. This arithmetic treatment of Book X leads to the point where 'Euclid's propositions are directly given as collected rules of operations on number irrationalities.'[25] (For the development of the idea of ratio as being a number, see the remarks on ᶜUmar Khayyām below, pp. 188–9.)

23. See the survey of Islamic work in number theory in Naini, 1982.
24. A pair of such numbers, e.g. 284 and 220, the Greeks called 'amicable'.
25. Matvievskaya, 1987, p. 272.

Algebra

Algebra was closely connected with arithmetic in the Islamic world, for as A. I. Sabra[26] has pointed out, both were studies whose object was to compute from one or more given numbers an unknown number (whether it be the sum or product of two given numbers or the root of a quadratic equation with given coefficients). Indeed, many of the arithmetic books contained chapters on algebra and many of the works on algebra had the word *hisāb* (calculation) in their titles. Moreover, as with arithmetic, algebra was another ancient area of endeavour which Islamic mathematicians systematized. Finally, as with arithmetic, the first known books in algebra stem from writers connected with Central Asia.

One of these writers we have already met: Muhammad b. Mūsā al-Khwārazmī, who dedicated his *Algebra* to the caliph al-Ma'mūn.[27] The first part of this tripartite work is a basic introduction to the algebra of equations of at most the second degree. The author prescribes the procedures for solving each of the six types into which he classifies such equations, presents examples, and gives demonstrations of the validity of the methods. In these demonstrations he uses informal geometric arguments which are ultimately of Babylonian origin.[28] The *Algebra* was twice translated into Latin in the twelfth century, by Robert of Chester and then by Gerard of Cremona, and in that form made a great impact on the West.[29] Another early writer on algebra was ᶜAbd al-Hamīd Ibn Turk, whose origins lay either in Khuttal or in Gilan and who was apparently a contemporary of al-Khwārazmī. His book *al-Darūrāt fī 'l-muqtaranāt* [The Logical Necessities of Mixed Equations] is extant only in part.[30] That it is not possible to assign priority to one or the other does not matter very much, if one accepts F. Sezgin's quite reasonable view that both works reflect activity that was already going on when their authors entered the scene.[31]

Following upon these two writers, Abū Kāmil Shujāᶜ b. Aslam of Egypt (*fl.* second half of ninth century), in his *Kitāb fī 'l-Jabr wa 'l-muqābala* [Book on Algebra], extended the algorithms which al-Khwārazmī and Ibn Turk had stated for operating with polynomials to powers as high as the eighth, and developed the arithmetic of binomial expressions, which Euclid had treated

26. Sabra, 1971.
27. The full title is *al-Mukhtasar fī hisāb al-jabr wa 'l-muqābala* (see Part One above). Text and translation in Rosen, 1831.
28. Gandz, 1936, pp. 523–4; Høyrup, 1986, pp. 445–84.
29. Toomer, 1973, p. 362, calls it 'the chief influence on medieval European algebra'.
30. Sezgin, 1974, p. 241; Sayili, 1962, pp. 87–91, who has published the extant part, points out that the date of Ibn Turk can be approximated only from the date of death, 910, of a man thought to be his grandson.
31. Sezgin, 1974, p. 241.

geometrically in Book X of his *Elements*. About a century later, Abū Bakr al-Karajī (*fl. c.* 1000), in his *al-Fakhrī* [The Splendid (Book)], became the first person to state general rules allowing the user to operate with polynomials of arbitrary degree. However, since he had no algebraic symbolism, al-Karajī relied on rules for manipulating coefficients of polynomials arranged in the columns of a table. With this technique he was able, for example, not only to multiply but, in some cases, to divide such polynomials as well. It appears however that, not knowing the rule $-a - (-b) = -(a - b)$, he was unable to master all cases of division of polynomials, and we first find this done successfully in the writings of al-Samaw'al b. Yahyā, a Jewish convert to Islam who died in 1174 at Maragha in Azerbaijan. He did systematic work with decimal fractions in problems dealing with root extraction and the approximation of roots of polynomials. Here one should highlight his statement, in his work, *al-Tabsira fī ʿilm al-hisāb* [The Perspicacious (Book) on Arithmetic], both of the intricate cases of the law of signs and of the general law of integer exponents, $a^m a^n = a^{m+n}$, valid for negative integers m and n as well as positive.

Moreover, al-Samaw'al was able to generalize algorithms for extracting square roots of ordinary whole numbers to rules for square roots of polynomials as well. In accomplishing these tasks, he not only shows his awareness of the potentially infinite nature of the processes (by referring to a finite part of the answer as 'the answer obtained so far') but also gives a recursive rule for writing down the coefficients of all the remaining powers.

A different approach to algebraic problems is that of ʿUmar Khayyām. In his *Maqāla fi 'l-jabr wa 'l-muqābala* [Discourse on Algebra], which he dedicated to Abū Tāhir, the chief *qādī* (judge) of Samarkand, ʿUmar Khayyām classifies the polynomial equations in a single variable of degree at most 3 according to the number of terms involved and then discusses each case where there is a positive real solution. His book follows the Central Asian tradition set by al-Khwārazmī of being entirely rhetorical, lacking the algebraic symbolism which developed in the Muslim West. ʿUmar Khayyām, moreover, avoids subtracted quantities in his classification of different types of equations, so that in the end he has 25 species of equations. His methods of solution, as he says in the preface to his work, use Euclid's *Elements* and *Data* and Apollonius' *Conics*. Terms such as x^3 or ax^2 he interprets geometrically as volumes, and his solutions are represented as line segments.

However, in ʿUmar Khayyām's view the fact that his approach is geometric does not mean his work is not algebra. Indeed, he says in the introduction that, 'One of the branches of knowledge... is the science of algebra, which aims at the determination of numerical and geometrical unknowns.' The important criterion was evidently that one was searching for an unknown quantity, and that in doing so one was using rules and procedures which had been used by algebraists from the time of al-Khwārazmī and Ibn Turk. The fact that the quantity one was searching for was a geometric magnitude and that one

also used some theorems of geometry in no way made the work less algebraic. Thus algebra was a branch of mathematics with very wide applications. On the one hand, it could contain many elements, and solve many problems, which we would think of as geometric. On the other, it was also considered a fundamental part of *hisāb,* the science of finding unknown quantities from known quantities.[32]

In his study of cubic equations, ʿUmar Khayyām was aware that he was building on work of al-Khāzin. Earlier, al-Māhānī had shown that Archimedes' problem of dividing a sphere could be stated in terms of a cubic equation, and ʿUmar Khayyām informs us that Abū Jaʿfar wrote a treatise containing the solution by intersecting conics.

Trigonometry

One of the chief contributions of Islamic mathematics was the development of plane and spherical trigonometry.[33] Although mathematicians from many parts of the Islamic world contributed to this endeavour, some of the most important applications were made by the mathematicians of Central Asia in the context of astronomical research. One of the most eminent of the early practitioners of mathematical astronomy was Habash al-Hāsib, originally of Merv but largely resident in Baghdad (*fl.* ninth century), who, as far as we know, was the first to calculate tables of auxiliary functions. These are combinations of trigonometric functions which are of little interest in themselves but which often appear in formulae of spherical astronomy, such as those in astronomical timekeeping.[34] They are thus of great service in computing astronomical tables. Perceiving the utility of such aids testifies to Habash's insight into the structure of a variety of seemingly different mathematical expressions.

Astronomer-mathematicians in the Islamic world spent considerable time improving the tables of the trigonometric functions that they had inherited from the Hindus. The climax of this development was the work of Ulugh Beg (see Part One, above), who composed *c.* 1440 his sine tables for each minute of arc to 5 sexagesimal places, an accuracy of almost 1 part in 1,000 million. This accuracy was, of course, based on the iterative method al-Kāshī used for computing Sin (1°) from the value of Sin (3°), which we mentioned above.

It appears that the development of spherical trigonometry took place during the latter half of the tenth century. The results of this work, as well as

32. For example, al-Kāshī in his *Miftāh* devotes *Maqāla V* to the subject of 'finding unknowns by algebra and the rule of double false position and other methods of calculation'.
33. The latter is the trigonometry of triangles on the surface of a sphere whose sides are arcs of great circles on that sphere.
34. For a survey of medieval literature on this topic, see King, 1990, pp. 27–32.

something of its history, are recounted by al-Bīrūnī in his *Kitāb Maqālīd ʿilm al-hay'a* [Book of the Keys to Astronomy], which he evidently wrote at the request of the Khwarazmian ruler Abū Nasr b. ʿIrāq. From this account, it appears that al-Būzajānī played a major role in the history of spherical trigonometry, for he explained the ubiquitous Rule of Four Quantities, the Law of Sines and the Law of Tangents.[35] It was Nasīr al-Dīn al-Tūsī who, at Maragha in the thirteenth century, completed and summarized trigonometry in his *Kitāb al-Shakl al-qattāʿ* [Book on the Complete Quadrilateral]. It is this work which marked the emergence of trigonometry as a discipline independent of astronomy, to which it had been linked for so long.[36]

A point which should be mentioned here, and which also applies to the subjects discussed earlier, is that each of these mathematical sciences acquired Islamic dimensions as its practitioners became aware that their disciplines could be used to provide exact solutions to problems unique to Islamic societies. In the case of arithmetic, such problems include the calculation of *zakāt* (alms-tax), as well as the seemingly endless calculations necessary to obtain tables of the times and direction of prayer. In the case of algebra, as we find from al-Khwārazmī's work, it includes the division of legacies (the so-called *ʿilm al-farā'id*, or science of obligatory shares). In the case of geometry, it was the application of that subject to the measurement of surfaces and volumes arising from the features of many mosques.[37]

Trigonometry found several areas of application, one of these being the determination of the direction of prayer, i.e. the determination of the direction of Mecca (the *qibla*), for a given locality. One of the masters of the application of spherical trigonometry to the basic problems of mathematical geography, which would permit the solution of the *qibla* problem, was al-Bīrūnī.[38] Suffice it to mention here that the goal of this work was to put Ghazna (in what is now eastern Afghanistan) 'on the map' by determining its latitude and longitude and from them its *qibla*. The sophistication of this tradition of determining the *qibla* is indicated by the recent appearance, on the modern antiquities market, of a device consisting of a circular disk on which is a co-ordinate net so devised that, when a ruler is rotated around the centre to pass through the cell bearing the name of some city, the end of the ruler indicates on the scale of the outer rim the *qibla* of that city. The scale on the ruler shows the distance between Mecca and that city. Although this particular device was made in Isfahan *c.* 1700, there is every reason to believe that it reflects a medieval tradition.

35. See Debarnot, 1985, for the full text and French translation. An abridged account of this very interesting story may be found in Berggren, 1987, pp. 16–17.
36. A similar development did not take place in the West until Regiomontanus completed his *De triangulis omnimodibus* in 1464.
37. See Dold-Samplonius, 1992, pp. 193–242.
38. Details can be found in his *Tahdīd nihāyāt al-amākin* [Determination of the Co-ordinates of Localities]. See Kennedy, 1973; Ali, 1967.

Geometry

Following the translation of many of the major and minor works of the Greek geometers into Arabic, the geometers of medieval Islam, and of Central Asia in particular, extended the frontiers of geometric research and opened up whole new areas as well.

Unlike other branches of the mathematical sciences, geometry had come to Islam with a logical structure, based on definitions, axioms and postulates. This situation, not surprisingly, attracted the attention of the geometers of the Islamic world to foundational questions in the subject. A prominent example of this is research into the question of Postulate 5 of Book I of Euclid's *Elements,* the so-called parallel postulate. Since this work has been well investigated by B. A. Rosenfeld, and the Arabic texts have been made available by K. Jaouiche, we shall merely state here that the tradition of the quadrilateral with two right angles, found in the works of ʿUmar Khayyām and then in Nasīr al-Dīn al-Tūsī, became known in Europe through the pseudo-al-Tūsī recension of Euclid's *Elements* which was printed in Arabic in Rome.[39]

Another basic question in geometry was, as already indicated, that of the foundations of the theory of proportion, i.e. of when two ratios should be regarded as being the same.[40] As in so many other areas, a major contribution to the question was made by ʿUmar Khayyām, who argued in his work on the difficulties in Euclid[41] that Definition 5 of *Elements* V hid the true nature of proportion and should be replaced by one based on the idea of anthyphairesis. This procedure, based on successive subtraction, is hinted at in Aristotle, and is used in the Euclidean algorithm *(Elements* VII.2) to find the greatest common divisor of two whole numbers. ʿUmar Khayyām not only proved the equivalence of the two definitions of ratio, but also came to a general conception of real number in his notion that any ratio could be treated as a kind of number even though, strictly speaking, it was not a number.

By no means all geometric work was devoted to foundational questions, however. Particularly noteworthy are the geometers, many of Central Asian origin, who assembled at the Buyid court of ʿAdud al-Dawla and his successors in southern Persia in the late tenth century. Among them was Abū Sahl al-Kūhī of Tabaristan (*fl.* second half of tenth century), called 'Master of His Age in the Art of Geometry' by his two younger contemporaries, Abu 'l-Jūd and al-Shannī.[42] Among al-Kūhī's writings are works on the regular heptagon and on duplicating the cube and trisecting the angle; correspondence about his

39. According to one suggestion, it may be the son of al-Tūsī, namely Sadr al-Dīn, who composed this.
40. See Plooij, 1950.
41. See Amir-Moez, 1959, pp. 276–303.
42. Quoted in Hogendijk, 1985, p. 113.

remarkable new discoveries in geometric mechanics;[43] a study of geometric problems suggested by the problem of constructing an astrolabe; and finding the volume of a paraboloid of revolution. For the astrolabe, he also invented a new method for solving the uniquely Islamic problem of drawing the projection of the azimuth circles on that instrument.[44] A colleague of al-Kūhī's was Abū Hamid Ahmad al-Saghānī (called 'The Astrolabist'; *fl.* tenth century), whose name indicates an origin on the upper Oxus. He was the author of a study of projection of a sphere[45] on to a plane perpendicular to its axis from a point on the axis but not on the sphere, a generalization of stereographic projection which gave rise to a variety of interesting mathematical problems and curious astrolabes. Both of the above mathematicians participated in a lively controversy at the Buyid court on the following questions: the admissibility of a construction of the regular heptagon in a circle that Arabic sources attribute to Archimedes; and the validity of constructions proposed by various tenth-century geometers.[46] Of course, the whole debate took place within the context of active work on the other famous problems of Greek antiquity, such as the trisection of the angle and the duplication of the cube.

We must close with a mention of some of the applications of geometry that were realized by the mathematicians of Central Asia. Pride of place in this group must go to al-Bīrūnī, whose geometric methods in cartography, geodesy and astronomy still excite admiration. We have already mentioned his *Tahdīd nihāyāt al-amākin*, where he solves the problems of computing the longitude of Ghazna relative to Baghdad, and the distance between those two cities and the *qibla* of Ghazna as well. In a much smaller treatise, the *Kitāb fī Tastīh al-suwar wa-tabtīh al-kuwar* [On The Projection of the Constellations and the Flattening of the Sphere],[47] he proposes an original mapping of a hemisphere which, when it was reinvented by G. B. Nicolosi in 1660, became known as the globular projection. He also describes a didactically interesting way of conceiving an earlier projection (known now as the azimuthal equidistant projection), invented (according to one account) by Khālid al-Marwarrūdhī.

Conclusions

Given the high level of Central Asian mathematics, it is unfortunate that European translators, who otherwise took so much from Arabic writings, knew so little of it. There are, of course, exceptions, such as the works of al-Khwārazmī.

43. Published in Berggren, 1983.
44. Published in Berggren, 1982.
45. See Lorch, 1987.
46. See the review of this controversy in Hogendijk, 1984.
47. See Berggren, 1982

But, in general, Europe was ignorant of the major Central Asian mathematical works – and their authors – in the centuries when they could have had the most influence. Al-Bīrūnī, al-Kūhī, ʿUmar Khayyām – none of them was known to European translators. One may easily suggest reasons why this was the case. Geographic separation, the particulars of the development of mathematics in the Muslim West (the primary site of transmission between Central Asia and Europe), the relative lateness of several of the major Central Asian writers and the interests and/or cultural level of the Latin translators: these are only a few of the reasons that come to mind as possible factors. One may debate their relative importance at some length, but what is beyond debate is that in the period covered by this volume, Central Asian mathematicians produced works which made their times one of the great ages of mathematical achievement.

7

ASTRONOMY, ASTROLOGY, OBSERVATORIES AND CALENDARS

A. Akhmedov

The Persian and Indian origins of Islamic astronomy

The history of astrology in the countries of Central Asia goes back to ancient times. Excavations at the Koy-Krylgan-kala site (fourth century B.C.–fourth century A.D.) show that this religious structure was designed in such a way that it could, like the Babylonian ziggurats, be used for astronomical observations. Archaeological finds at the site included fragments of clay discs and flattened rings, a combination which recalls the reconstruction of a Greek astrolabe with a circular alidade made by O. Schirmer according to the description by al-Bīrūnī.[1]

We know that the Khwarazmians had their own era and their own calendar, which was distinguished by its great precision. Keeping such a calendar necessitated stationary observations of the daily movements of the moon and sun and the positions of the stars at the vernal and autumnal equinoxes and the summer and winter solstices, which in turn presupposed a thorough knowledge of astronomy. Al-Bīrūnī provides some information about astronomy in ancient Khwarazm. He says that an astronomer 'was called *akhtarvenik* in the language of the Khwarazmians' and that 'the Khwarazmians knew the constellations better than the pre-Islamic Arabs'.[2] In the same passage he complains bitterly that 'the learned Khwarazmians who used lunar stops and knew very well how to observe and draw conclusions from them have died out'.

Somewhat more extensive information has been preserved about astronomy in pre-Islamic Iran than in pre-Islamic Khwarazm. We know of the existence of a Pahlavi translation of certain writings of Greek origin. According to this information, one of the early Arabic translations of Ptolemy's

1. Schirmer, 1926–7, pp. 43–6, 63–79.
2. Al-Bīrūnī, 1957.

Almagest (first–second century) was made by ʿAlī b. Rabbān al-Tabarī from the Pahlavi. Some Indian influence also appears to have been noticeable in pre-Islamic Iran. This can be seen from the example of the Sasanian astronomical treatise *Zīj al-Shāh* or *Zīj-i Shahriyār* [Astronomical Tables of Shahriyār] (from the Pahlavi *Zīg-i Shahriyār*). The first version of this *Zīj* is thought to date back to about 450 and to have been dedicated to the Sasanian emperor Yazdgird II (438–57).[3] Later, in the year 556, under the reign of Khusraw I Anūshirvān (531–79), 'it was re-edited and expanded by the addition of information of Indian and Hellenistic origin'.[4] Its final version was made under Yazdgird III (632–51), when it was given the name of *Zīg-i Shahriyār*, or Shahriyār's *Zīj*. E. S. Kennedy has established that this Sasanian *Zīj* includes parameters borrowed from the Indian *siddhantas*, in particular from the *Surya-siddhānta* and the *Brahma-sphuta-siddhānta* of Brahmagupta.[5]

The *Zīj al-Shāh* in its complete form has not come down to us. Separate fragments of this *Zīj* and references to it are to be found in the works of al-Bīrūnī.[6] On the basis of these, it may be concluded that the original included a large number of tables of Indian and, possibly, Babylonian origin. The compilers of this work understood the term *zīg* to mean a composition of a tabular nature because in Pahlavi this word originally meant 'cellular' or 'reticular'. Later, this word in its Arabized form *zīj* became synonymous with the Greek *kanōn* (canon) and came to signify an astronomical work containing tables.

The sources mention another work in the Pahlavi language which also has not come down to us. This is the *Bizidaj*, a text of an astronomical nature. Al-Bīrūnī drew upon it.[7] It has been established that the *Bizidaj* is the translation into Pahlavi of the *Anthology* of Vettius Valens (second century A.D.).[8] The astronomical treatise *The Eighty-Five Chapters*, ascribed to the mythical ancient Egyptian physician and astrologer Hermes Trismegistus, was also known in Sasanian Iran.

Indian astronomy may have had some influence on the development of astronomy in the caliphate. A large group of eminent astronomers was active in India in the fourth to the seventh century, but details of a possible transmission of their works are lacking.

The earliest *zījs* in Arabic appeared in the eastern part of the caliphate, i.e. in the southern region of Central Asia. These works had either been translated into Arabic or had been written in Arabic on the basis of ancient local scientific tradition. Thus al-Bīrūnī mentions an old *zīj* seen by him at the house

3. Pingree, 1963, pp. 229–49.
4. Pingree, 1973, p. 34.
5. Kennedy, 1958, p. 246.
6. Al-Bīrūnī, 1959, pp. 28–9, 58–9.
7. Al-Bīrūnī, 1995, pp. 4–5.
8. Nallino, 1944, pp. 238–40.

of ᶜAlī b. Muhammad al-Washjirdī at Ghazna. This *zīj* was constructed according to the era of Diocletian, which began in 284, and contained references to astronomical observations made between 709 and 719, these observations being entered at the end of the *zīj* not by the author himself but by one of the book's owners. The *zīj* must therefore have been written at a considerably earlier date, i.e. in the seventh century. In the second half of the eighth century, under the caliph al-Mansūr (754–75), the city of al-Mansura which the Arabs founded in western India became a centre of scholarship. The *Zīj al-Harkand* was written down in Arabic; according to al-Bīrūnī, this was a translation into Arabic of the *Khandakhādyaka* of Brahmagupta (598–665).[9] Evidently the translation was not entirely accurate, as the planetary equations had been garbled, and al-Bīrūnī therefore made a new translation of the work into Arabic.[10] Two *zījs* compiled at Kandahar are also known. They are the *Zīj al-Jāmiᶜ* and the *Zīj al-Hazūr*. These, too, are thought to be derived from the *Khandakhādyaka* of Brahmagupta. Al-Bīrūnī also mentions the *Zīj al-Harkand*, in which the calculations are made for the year 110 of the 'era of Yazdgird', i.e. 742.[11]

The true flowering of scientific and translating activities took place in Baghdad, the centre of the caliphate, under the same caliph, al-Mansūr. According to the biobibliographer Ibn al-Qiftī (twelfth–thirteenth century), a mission from India, whose members included the scholar Kanka, arrived in Baghdad in the year 156 of the Hijra (A.D. 773) (according to al-Bīrūnī, in 154/771). Kanka carried with him certain Indian books, among them the *Brahma-sphuta-siddhānta* of Brahmagupta. Ibrāhīm al-Fazārī translated it into Arabic by order of the caliph, and this translation later became known as the *Great Sindhind*. The translator-scholars Yaᶜqūb b. Tāriq and Māsh'allāh, also active in Baghdad at the time of al-Mansūr, produced translations and editions of Indian astronomical treatises, Ibn Tāriq being responsible for an edition of Brahmagupta's *Khandakhādyaka* and the *Zīj al-Harkand* mentioned above.[12]

Jābir b. Hayyān (721–89) was the first among the Arabic-speaking scholars of the time of al-Mansūr to turn his attention to the works of Greek scholars. He translated works by Euclid, Ptolemy, Theo of Alexandria, Alexander of Aphrodisia and others. One of his major astronomical works was a commentary on Ptolemy's *Almagest*.[13] During the time of the caliph Hārūn al-Rashīd (786–809), the *Almagest* was translated into Arabic twice. However, all these translations and editions were made via the intermediary of the Syriac.

In the ninth century, under al-Ma'mūn (813–33) and his successors, several translations of the *Almagest* directly from the Greek were made by the

9. Al-Bīrūnī, 1959, pp. 37–8, 152.
10. Boilot, 1955, pp. 203–4.
11. Kennedy, 1956, p. 137; Pingree, 1970, pp. 103–23.
12. Nallino, 1944, p. 204.
13. Sezgin, 1978, pp. 129–34.

translators Hajjāj b. Matar, Ibrāhīm b. al-Sāmi, Husayn b. Is'hāq, ᶜUmar b. Farrukhān, Thābit b. Qurra, al-Nayrīzi and al-Battānī. Al-Ma'mūn became caliph in Merv in 813 and ruled the caliphate from that city until 819. Here he gathered around him astronomers from Ferghana, Chach, Khwarazm, Khurasan and what is now Afghanistan. In 819 he moved to Baghdad and was followed there by Yahyā b. Abī Mansūr, Khālid b. ᶜAbd al-Malik al-Marwarrūdhī, ᶜAbbās b. Saᶜīd al-Jawharī, Abū Tayyib Sanad b. ᶜAlī, Muhammad b. Mūsā al-Khwārazmī, Ahmad b. Muhammad b. Kathīr al-Farghānī, Ahmad b. ᶜAbd Allāh Habash al-Hāsib, ᶜAbd al-Hamīd Ibn Turk al-Khuttalī and others.

All these scholars were astronomers. They conducted stationary observations at observatories in the Shammasiyya district of Baghdad and at the Dayr Murrān on Mount Qasyun near Damascus. They also measured the length of one degree of the earth's meridian in the Sinjar desert of northern Syria. The best known among them are al-Khwārazmī and al-Farghānī. The former compiled his *Zīj* on the basis of al-Fazārī's *Great Sindhind* and of Theo of Alexandria's fourth-century adaptation of the *Almagest*. This work has been the object of many commentaries by Muslim scholars. Around the year 1000 it was edited by the scholar of Muslim Spain, Maslama al-Majrītī, and this was twice translated into Latin in Spain in the twelfth century by Adelard of Bath and by Petrus Alfonsus; such translations later made their way across medieval Europe and influenced the work of Renaissance scholars.

Al-Farghānī (d. 860) was the author around the year 840 of a *Kitāb Usūl ᶜilm al-nujūm* [Book on the Elements of the Science of Astronomy] (and variant titles), which was a popularized version of Ptolemy's *Almagest*. The work was twice translated into Latin in the twelfth century: first in 1145 by John of Seville and again in 1175 by Gerard of Cremona. These translations were printed in Europe from 1493 onwards and al-Farghānī's work was for a long time Europe's principal textbook of astronomy.

Al-Ma'mūn's Bayt al-Hikma (House of Wisdom) functioned until the end of the tenth century. In 1900 the German historian of science, H. Suter, published a biobibliographical work in which he cited the names of some 500 astronomers working there in the ninth and tenth centuries; J. Ruska commented that the scholars listed 'originated almost without exception in Khurasan, Transoxania, Bactria and Ferghana'.[14]

Genuinely outstanding results in astronomy were achieved by the great Khwarazmian scholar al-Bīrūnī (973–1048). Over 80 of his more than 150 works are devoted to astronomy and related subjects.[15] In his astronomical writings, al-Bīrūnī sums up three centuries of development of astronomy in the Arab caliphate. He submits all earlier translations of the *Almagest* and of the Indian

14. Ruska, 1927, p. 127.
15. Matvievskaya and Rozenfeld, 1983, pp. 264–95.

astronomical texts to critical review and evaluation. In his encyclopedic *Tahqīq mā li 'l-Hind* [Inquiry into What is to be Found in India], he gives full information about all Indian astronomical writings, their Arabic translations and the Indians' achievements in the sphere of astronomy. In his *al-Qānūn al-Mas^cūdī* [Canon of (Sultan) Mas^cūd], composed of 11 books, al-Bīrūnī assesses the achievements of Arabic-speaking astronomers. In this work he divides Muslim astronomers into two groups: adherents of the Hellenistic tradition and those of the Indian tradition. While holding the Indians' achievements in astronomy in high esteem, he points out the erroneous nature of their views in such matters as the theory of planetary motion, the distances from the earth to the planets and the dimensions of the earth. For this reason, he does not agree with the adherents of the Indian tradition and counts himself among those of the Hellenistic tradition. Unfortunately, al-Bīrūnī's more substantial astronomical works have not been preserved. However, their titles give grounds for supposing that they too were devoted to questions of Hellenistic and Indian astronomy.

During the time of Timur and his dynasty, Samarkand became a major centre of scholarship not only for mathematics (see Chapter 6, above) but also for astronomy, especially under Ulugh Beg (1394–1449). Besides the ruler himself, this school included the leading astronomers of the fifteenth century: Qādīzāda Rūmī (d. 1430), Jamshīd al-Kāshī (d. 1429) and ᶜAlī al-Qūshjī (d. 1475). The first major astronomical work produced by this school was the *Zīj-i khāqānī*, a completion and emendation of the Il Khanid *zīj* (*Zīj-i khāqānī dar takmīl-i zīj-i Ilkhānī*) written by al-Kāshī for Ulugh Beg's library in 1417. The most important astronomical work of the school of Samarkand was, however, the *Zīj* of Ulugh Beg, on which he began working as early as 1414. In the initial stages of the work, he was assisted by Qādīzāda Rūmī and Jamshīd al-Kāshī. After their death the work was completed in 1444 with the assistance of ᶜAlī al-Qūshjī. The whole of medieval astrology is summed up in this work and all its tables are compiled with great precision. The *Zīj* has been the subject of many commentaries by Muslim scholars and came to the notice of European scholars as early as the sixteenth century. All tables in it were compiled for the latitude of Samarkand as computed by Ulugh Beg (equal to 39°37'23") and for the first of Muharram of the year 841 of the Hijra, which corresponds to 5 July 1437 A.D.

Astrology

In Central Asia, as in other Muslim lands, astrology existed as a branch of science side by side with astronomy. Although it is stated in Qur'an 27:65 that 'No one but God shall know the future,' interest in astrology was always intense, and it was almost universal for Islamic rulers to govern their decisions and actions by astrological considerations.

Two trends in astrology may be distinguished. The first is based on measurements and mathematical theory, i.e. mathematical astronomy, while the second is magical and irrational, unsupported by mathematical calculations of any kind.[16] Many Islamic scholars were critical of astrology and its practitioners, evidently having in mind those of the second kind. Thus al-Bīrūnī first of all draws a clear distinction between astronomy and astrology. He describes astronomy as *ᶜilm al-nujūm* (science of the stars) or *ᶜilm hay'at al-nujūm* (science of the structure of the stars), the word *ᶜilm* emphasizing that astronomy is a science. As for astrology, he describes it by the terms *sināᶜat al-nujūm*, *sināᶜat ahkām* and *sināᶜat ahkām al-nujūm* (the art of star-counting, the art of divination and the art of predicting the future by the stars); in other words, astrology is an art or practice, distinct from the science of astronomy. Furthermore, in all these terms the word 'art' carries implications of 'swindle', 'machination', and so on. For these reasons, al-Bīrūnī criticizes astrology in many of his works, going so far as to devote to that purpose a special treatise entitled, 'Warning against the Art of Fraudulent Divination by the Stars'. He openly condemns astrological predictions in his *Tahdīd nihāyāt al-amākin*, or *Geodesy*: 'Generally speaking, the art of prediction has weak foundations, and the theses derived therefrom are likewise weak. The measurements taken within it are confused, and suppositions prevail over reliable knowledge.'[17] A harsher criticism of astrology and astrologers is to be found in Book II of his *al-Qānūn al-Masᶜūdī* devoted to astronomy:

> The art of interpreting the verdicts of the stars, to which this book is confined, is essentially autonomous in that it carries its 'value' exclusively within itself. As a rule, it attracts only the hearts of those who imagine pleasure to consist in being free from physical suffering and profit to lie only in worldly goods. If you do not seek those goods you will be repelled by this art and its predictions, its rules and its practitioners.[18]

Despite such criticisms, astrology nevertheless remained very popular in the countries of Islam in pre-modern times.

In his *Kitāb al-Tafhīm li-awā'il sināᶜat al-tanjīm* [Book of Instruction in the Elements of the Art of Astrology],[19] al-Bīrūnī further criticizes astrology. He discusses in detail the astrological doctrines of the Greeks, India, Iran and Central Asia and the astrological significance of various signs of the Zodiac, heavenly bodies and astrological 'houses'. Emphasizing the fact that the same astrological question is treated differently, and sometimes even in contradictory fashion, by various astrologers in these countries, al-Bīrūnī exposes the

16. Sayili, 1960, p. 47.
17. Al-Bīrūnī, 1966, p. 260.
18. Al-Bīrūnī, 1976, p. 449.
19. Al-Bīrūnī, 1934.

falsity of astrology as a science. Where possible, he reverts to mathematics and astronomy. In particular, he describes in detail the 'module-based' arithmetical operations needed for the calculation of astrological horoscopes. All obscurities, such as 'stars which have an adverse influence on vision', are listed and methods of measuring time with the help of clepsydras, or water-clocks, are set out in detail.

With the exception of the obvious effects of the sun's rays, al-Bīrūnī does not believe claims that events on earth are influenced by heavenly bodies. If astrological predictions are, in principle, an algorithm which makes it possible to determine by the position of the planets at a given moment the fate of a person born at that moment, or to determine whether that moment is favourable for some particular undertaking, then (since the direct application of this algorithm may lead to conclusions completely unrelated to reality) the astrologers introduce an element of arbitrariness, for instance through the *khaylaj*, which is chosen as one of five possible points on the ecliptic; they then carry out a number of astrological calculations which allow them to make the astrological prediction fit the previously known result. The question of how the result of a prediction can be known in advance is dealt with in the book's last section, where al-Bīrūnī advises readers to pay careful heed to all instructions and actions of the questioner and, in turn, to ask him additional questions, elucidating all the circumstances and, in substance, arriving at the desired conclusion without any observations or calculations. The same conclusion can then be reached with the help of the astrological algorithm.

In effect, astrology operates with the same concepts as astronomy but endows them with astrological significance. For example, the word 'horoscope' (from the Greek *horos* 'time' and *skopein* 'to determine') initially meant the ascent or ascending degree of the ecliptic. This was used in determining the time of a given event, the spherical co-ordinates of the planets and other important points of the celestial sphere. Later, the term acquired a purely astrological significance. That is why certain medieval scholars devoted parts of their astronomical writings to the subject of astrology. In one of the earliest astronomical texts, the *Zīj* of Muhammad b. Mūsā al-Khwārazmī (*fl.* first half of ninth century), Chapters 32, 36 and 37 are devoted to astrology.[20] The last of the four books of the *Zīj* of Ulugh Beg, the greatest of the later scholars of Central Asia, is also given over to astrology.[21]

20. Al-Khwārazmī, 1983, pp. 49, 54, 55.
21. Ulughbek, 1994, pp. 255–77.

Observatories and astronomical instruments

The first experiments with observation instruments date back to the time of al-Ma'mūn in Baghdad and Damascus (see above). No detailed information has, however, been preserved on these except for fragmentary mentions by al-Bīrūnī in his *Qānūn* and his *Geodesy*.

We have more details about the activities of the astronomer Abū Mahmūd Hāmid al-Khujandī (d. *c.* 1000), who worked at Rayy and was the author of, *inter alia*, a pioneer work on the astrolabe, *Risāla fī ʿAmal al-āla al-shāmila* [Treatise on the Construction and Utilization of the Astrolabe]. Al-Khujandī is believed to have proved the sinus theorem for the spherical triangle,[22] and became famous as the inventor of the sextant, which he called *suds-i fakhrī* (Fakhrī's sextant) in honour of his patron Fakhr al-Dawla, the Buyid ruler of Rayy. Prior to the invention of this sextant by al-Khujandī, the astronomical instruments used for measuring the geographic latitude of the place of observation, the angle of obliquity of the ecliptic to the celestial equator, etc., were based on visual observation of the meridian altitudes of the heavenly bodies. Al-Khujandī's sextant was, however, based upon an entirely new principle. The star (the sun) is not observed by the observer's eye; its rays pass through a dioptric lens placed in the upper part of a darkened chamber and the sun itself is 'caught' as a reflection on the scale of the sextant's arc, which is located in the lower part of the chamber. The arc must be placed strictly within the meridian plane, while the dioptric lens is placed at the centre of an imaginary circumference of which the graduated arc represents one-sixth. The scale of the arc of 'Fakhrī's sextant' was graduated at intervals of 10 seconds.

Here is how al-Bīrūnī describes al-Khujandī's sextant in his *Geodesy*:

> By order of Fakhr ad-Dawla, Abū Mahmūd Hāmid b. al-Khidr al-Khujandī built on Mount Tabarak in the outskirts of Rayy two parallel walls along the meridian, the distance between the walls being seven cubits (approx. 3.5 m). Between the walls he constructed an arch with a dioptric lens on top of it, the aperture of the lens having a diameter of one span (0.3 m). He made the centre of this lens the centre of the sixth part of a circumference likewise placed along the meridian between these two walls and having a diameter of eighty cubits (approx. 40 m). He paved this sextant with wooden boards, faced it with copper and marked each degree of the circumference with three hundred and sixty equal segments, each of which equals ten seconds. The sunlight passed through this dioptric lens and fell upon the meridian line. Abū Mahmūd made a ring of the dimensions of the circumference of a sunbeam falling upon the ground, having established its centre by two intersecting diameters. He placed the circumference of the ring upon the circumference of the reflection of the sun and, using the centre of the ring, determined the distance between the sun and the zenith.[23]

22. Matvievskaya, 1972, pp. 85–6.
23. Al-Bīrūnī, 1966, p. 133; Bulgakov, 1972, p. 48.

In his treatise, the *Risāla fī Tas'hīh al-mayl wa-ʿard al-balad* [On the Precise Determination of the Maximum Declination and Latitude of a Town], al-Khujandī states that, when observing the meridian altitudes of the sun on the days of the summer and winter solstices of the year 994, he found the latitude of the town of Rayy to equal 35°34'15" (with an error of less than 5') and the obliquity of the ecliptic towards the equator to equal 23°32'32" (with an error of 1'51").[24] Subsequent to this, a number of astronomical instruments were constructed by al-Bīrūnī, some of which are described in his *Geodesy*;[25] he also wrote several treatises describing astrolabes and other astronomical instruments.[26]

It was Ulugh Beg who had the honour of further improving Fakhrī's sextant. In 1420 he undertook the construction of an observatory on Mount Kuhak at Samarkand, which was completed in 1429. The observatory's main instrument was a meridional arc constructed on the principle of Fakhrī's sextant. But it was not a simple copy of al-Khujandī's instrument. In the first place, it differed from that instrument by its dimensions. Its diameter was twice that of Fakhrī's sextant and equalled 84 m.[27] The arc of Ulugh Beg's sextant was a quadrant. The working part of the instrument was graduated from 20° to 80°. It is thought that the main instrument of Ulugh Beg's observatory was used as a quadrant as well.[28] By means of this instrument, the latitude of Samarkand was found by him to equal 39°37'23" and the angle of obliquity of the ecliptic to the celestial equator to be 23°30'17". Besides Fakhrī's sextant, instruments used at Ulugh Beg's observatory included an armillary sphere, a sinus quadrant, dioptric lens instruments and azimuth quadrants.[29]

Calendars

In the countries of Central Asia, as in other Islamic lands, the most widely used calendar was the lunar Hijri one. This calendar is based on a year composed of 12 lunar months. The length of a lunar month is taken to be the period between two new moons, which equals 29.5306 days. The duration of the year according to the Hijri calendar is just over 354 days. The fractions by which this number is exceeded are added together to form an extra day which is intercalated every second or third year, this year being considered as a leap year (*kabīsa*).

24. Bulgakov, 1972, p. 49.
25. Al-Bīrūnī, 1966, pp. 111, 112, 113, 151.
26. Bulgakov, 1972, pp. 420–2.
27. Kori-Nieziy, 1971, p. 97.
28. Dzhalalov, 1950, p. 81.
29. Yusupova, 1979, pp. 53–7.

In the countries of Central Asia, the Persian, Sogdian and Khwarazmian calendars were known from ancient times. All these were solar calendars in which the year was composed of 12 months of 30 days. Five days were added on at the end of the year or after the tenth month, so that the year had 365 days. The first day of the year was taken to be 21 March, the day of the vernal equinox (Nawrūz). This day marked the beginning of the first month of the year – Farvardin for the Persians, Navsard for the Sogdians and Navsarju for the Khwarazmians.[30] The Khwarazmian and Sogdian calendars were abandoned following the definitive establishment of Islam in the region.

The Persian era began on 16 June 632, the beginning of the year of the accession to the throne of the last Sasanian emperor, Yazdgird III (632–51), hence the era was also known as that of Yazdgird. According to the Persian solar calendar, however, the year began on 21 March. This calendar had no leap years and for that reason had eventually to be reformed. The reform was carried out in 1079 by order of the Seljuq sultan Jalāl al-Dīn Malik Shāh (1072–92) by a group of astronomers headed by ʿUmar Khayyām: the new calendar system was called the 'Malikī era' or the 'Jalālī era' in honour of the sultan.[31] This calendar was in use in Iran until the middle of the nineteenth century.

30. Al-Bīrūnī, 1976, pp. 223–60.
31. ʿUmar Khayyām, 1961, pp. 19–35.

8

GEODESY, GEOLOGY AND MINERALOGY GEOGRAPHY AND CARTOGRAPHY THE SILK ROUTE ACROSS CENTRAL ASIA

S. Maqbul Ahmad and K. Baipakov

Part One

GEODESY, GEOLOGY AND MINERALOGY GEOGRAPHY AND CARTOGRAPHY

(S. Maqbul Ahmad)

Geodesy

When the Greek, Syriac and Indian astronomical and geographic works were rendered into Arabic during the time of the ᶜAbbasid caliph al-Ma'mūn (813–33), it was found that the values of a terrestrial degree were given in *stadia* or in the Indian measure *jojana*. These were unknown quantities for the astronomers working at the caliph's Bayt al-Hikma (House of Wisdom) in Baghdad. Mercier points out that the conversion between the linear and annular distances may be expressed either as a ratio – the number of units per degree of circumference – or as a proportion of the radius of the earth. The values of both these important ratios were known from various pre-Islamic sources, but the principal difficulty in employing the information arose from ignorance of the earlier units of measurement. Islamic astronomers knew, for example, of the ratio 75 miles per degree of latitude, which in fact is very accurate when the mile is the Roman mile of 1,480 m. They also knew from Ptolemy's *Geography* of his measure of 500 *stadia* per degree. They were evidently confused about such earlier results, principally because they lacked information about units such the *stadium* or the Roman mile. This confusion was clearly the principal reason that early ᶜAbbasid astronomers, at the time of al-Ma'mūn, undertook to repeat the basic measurements, measuring off the distance in terms of units familiar to them.[1]

1. Mercier, 1992, p. 176.

For these reports of the geodetic operations conducted by astronomers, we have the following sources of information: Habash al-Hāsib (*fl.* ninth century), al-Bīrūnī (973–1048) and Ibn Yūnus (d. 1009), who owes his account to both Sind b. ᶜAlī and Habash al-Hāsib. Ibn Yūnus mentions the measurement taken in the area between Wasa (Mamia) and Tadmur (Palmyra), in which the degree of the great circle of the terrestrial equator was 57 miles (92 km). Mercier is of the opinion that 'pre-Islamic measurements involving Tadmur had somehow come to be included in the account of the Sinjar expedition'. He expresses some doubts even about the results acquired in the desert of Sinjar by saying: 'Moreover, the measurements along the two directions, north south, are bound to have differed somewhat, but we are told nothing of this, nor why the generally accepted figure was 56⅔. In any case, the result 56⅔ Arabic miles may be derived from the 75 Roman miles (121 km) by a simple conversion of the units.'[2]

However, al-Bīrūnī, in his *al-Qānūn al-Masᶜūdī* [Canon of (Sultan) Masᶜūd], goes into the reasons for the variations in the values determined by al-Ma'mūn's astronomers. He observes:

> It is inevitable that there should be controversies regarding the dimensions of the earth, for it is one of those matters which must be based on experiment at a distance and reports on observations. All nations have recorded their observations in the measures employed in their own countries, e.g. the stadium of the Greeks and the *jawzhan* (*yojana*) of the Hindus. When therefore their books were translated into Arabic, and the real value of their units was unknown, then the caliph . . . commanded an investigation to be undertaken anew, and with this object a number of savants of that time (such as Khālid al-Mawarrūdhī, Abu 'l-Buhturī ᶜAlī b. al-Buhturī the geometrician, and ᶜAlī b. ᶜĪsā, the astrolabe-maker) were ordered to proceed to the desert of Sinjār and take the matter in hand. They found the value of one degree of a great circle on the earth to be 56 and ⅔ miles, and multiplying this by 360 arrived at 20400 miles for the circumference of the earth. Each mile is a third of a parasang or 400 black cubits; the trade cubit is well-known in Iraq, and is used in Baghdad for land-surveying; it measures 24 finger breadths (*isbaᶜ*). I have investigated the matter in Hindustan by another method and have found no discrepancy with the figures cited above.[3]

Al-Bīrūnī had attempted several experiments to assess the value of a terrestrial degree, but had given up for lack of patronage, so he concentrated 'on cheaper and better methods to measure the circumference of the earth. Finally, he came to the conclusion that measurement with the observation of eclipses was defective due to their being indistinct and dim, while operation with straight lines was superior.'[4] So he developed a trigonometric method, cheaper and more

2. Mercier, 1992, pp. 180–1.
3. Al-Bīrūnī, 1934, pp. 118–19.
4. Saᶜid and Zahid, 1981, p. 165.

accurate than the earlier methods. He describes the method and the experiment which he carried out in the fort of Nandana in north-western India at some time between 1020 and 1025. He points out that he was 'led to this method by Abu 'l-Abbās al-Nayrīzī' (d. after 912), who described Eratosthenes' observation, namely, that 'the heights of the peaks of the mountains would be $5\frac{1}{2}$ miles when the length of the radius of the earth is 3,200 miles approximately. For the solution of this problem it is necessary mathematically that the dip of the horizon in the mountain wherein the perpendicular is so high should be about $\frac{1}{3}$ degree.' This he was able to find in India, namely, that the horizon inclined from the eastern and western lines a little less than $\frac{1}{3}$ and $\frac{1}{4}$ degree, so he took the dip of the horizon as being 34 minutes, and applied his trigonometric method. By this, he came to the conclusion that a degree was equivalent to 56°0'6". This result, he says, comes very close to the findings of al-Ma'mūn's astronomers: al-Bīrūnī's figure of the circumference of the earth was $24{,}778\frac{1}{2}$ miles, while the finding of those astronomers was $24{,}825\frac{225}{528}$ miles. Al-Bīrūnī's own figures, on the basis of the measurement of diameter (7,878 miles), as compared to the modern value (7,878 miles or 12,700 km), come to a difference of 24 miles or 38 km only, a remarkable achievement on his part.[5]

Of the different values of a terrestrial degree, $56\frac{2}{3}$ miles was used by many Arab scientists. Other values commonly found were $66\frac{2}{3}$ miles and 75 miles per degree. One of the earliest texts reporting the ratio $56\frac{2}{3}$ is that of al-Farghānī: 'We find in this way that to one celestial degree corresponds on the earth's surface $56\frac{2}{3}$ miles, of which each contains 4,000 cubits, called "black" (*al-sawdā*). So it was determined, in the time of al-Ma'mūn . . . by a number of scholars brought together for this measurement.' (We know that one of the scholars involved in this was the astronomer and mathematician Khālid b. ᶜAbd al-Malik al-Marwarrūdhī [from Marwarrūdh, near the frontier between modern Afghanistan and Turkmenistan; *fl.* first half of ninth century], who had come to work in Baghdad.) The ratio 75 miles per degree, says Mercier, is attributed to Muhammad b. Mūsā al-Khwārazmī (*fl.* first half of ninth century) by Ibn al-Faqīh (*fl.* ninth century) and by Yāqūt (1179–1229), but, in his opinion, it does not originate with al-Khwārazmī but was presumably taken from Syriac sources. When converted to Arabic miles, the ratio of 75 miles is replaced by $56\frac{1}{4}$ miles.[6] Al-Zuhrī (d. between 1154 and 1161) also uses the value 75 miles to a degree. On the other hand, al-Masᶜūdī (tenth century) mentions three different values: 56 miles, 67 miles and $66\frac{2}{3}$ miles to a degree. He himself considered the last figure to be correct, for it corroborated the figure given by Ptolemy, by which reckoning the circumference of the earth would be 24,000 miles (38,000 km). In fact, C. A. Nallino has pointed out that this figure is not the

5. Saᶜid and Zahid, 1981, pp. 165–70.
6. Mercier, 1992, p. 178.

equivalent of Ptolemy's figure of the circumference of the earth, namely, 180 *stadia*, which it exceeds by about 5,500 English miles (8,870 km). The error arose, he points out, when the Arabs translated the Greek and Syriac works; they did not realize that the Roman and the Syrian mile was shorter than theirs, hence they attributed to Ptolemy a greater measurement than they should have done.[7]

Geology and mineralogy

The Muslim scientists of the Middle Ages did not conceive of geology as a separate science with a well-defined scope and limits as we do today. However, they discussed various aspects of the subject and related topics in their writings, such as the origins and formation of the earth, its structure, geomorphology, formation of the seas, land, earthquakes, etc. They also made observations about land changing into water and vice versa over a period of time, and discussed erosion and deposition, changes in the courses of rivers, and the equilibrium of the earth. They paid special attention to mineralogy, in which they seem to have been deeply interested, and wrote special monographs on the subject. The earliest source here was Aristotle's apocryphal *Lapidaria*. Several Greek, Persian and Indian writers on the subject are quoted by them as sources of knowledge. Among the most important Muslim writers on the subject were al-Bīrūnī, in his *Kitāb al-Jamāhir fī maʿrifat al-jawāhir* [Comprehensive Book on the Knowledge of Precious Minerals], and Ahmad b. Yūsuf al-Tīfāshī (d. 1253), in his *Kitāb al-Azhār al-afkār fī jawāhir al-ahjār* [Book of the Flowers of Thought Concerning Jewels and Precious Stones], and others.[8]

We shall present here, however, the views of Ibn Sīnā and al-Bīrūnī, for they were original in the sense that they combined theory with practice and their authors made important contributions on the basis of their observations.

IBN SĪNĀ

In his *Kitāb al-Shifā'* [Book of Healing], Ibn Sīnā (*c.* 980–1037) presents his views on the formation of the earth, seas, mountains, etc. in a very systematic manner:

> According to the [basic] nature of the earth and water, earth ought to be submerged under water and water should surround the earth on all its sides, but the reality is different. It is not in conformity with the basic nature of the earth and water. Rather, it is according to what is natural for the whole system. Since the earth transforms itself into other elements, notches [depressions] are caused in it in places where it

7. Ahmad, 1953, pp. 67–8, 72; 1995, pp. 156–7.
8. Anawati, 1979; Ruska, 1913.

> transforms itself into elements; if it does not accumulate in its natural shape, it causes lowlands to form. Again, if other elements transform themselves into earth, they take the form of additions or swellings. Thus it is necessarily incumbent that lowlands and highlands should appear on the spherical surface of the earth.[9]

On the formation of the seas, he says that:

> the movements of the fixed stars [in the eighth sphere] cause accumulation of the seas in one place in the low-lying areas and also cause the exposure of the highlands when water is displaced away from it by the action of the stars. The action of the stars is therefore the main agent in the formation of the shape of the earth.[10]

On the formation of mountains, minerals and precious stones, Ibn Sīnā observes that a substance he calls 'gluey clay' is the most important element in the process of the formation of mountains and minerals:

> this clay is necessarily formed between water and earth, and when exposed to the energy of the sun and the planets, it petrifies and forms into mountains. The mountains were formed out of the 'gluey clay' which dried over a long period and then became petrified over a period whose duration cannot be determined [geological period]. [It seems therefore] that the inhabited world, the *oikumene*, was uninhabited in the past. Rather, it was submerged under the seas. Subsequently, it became petrified, either gradually emerging [out of water] in prehistoric times or it became petrified under water due to the intensity of the concentrated submarine heat; but it is more plausible [that this process] took place after its emergence [from water]. The gluey character of the clay helped this process of petrification. It is for this reason that inside many stones, when they are broken up, one finds pieces of sea animals, like molluscs, etc. [i.e. fossils].[11]

He further suggests that it is not improbable that minerals were also formed through this process. Many of the stones are formed out of the element in which the earth dominates, while others are formed in which water dominates. Much of the clay dries up and is then changed into an intermediary form between stone and clay, which is soft stone, and then into stone. The best clay in this process is the gluey clay. If it is not gluey, then in most cases it breaks before it stratifies. Ibn Sīnā then describes his experience of noticing clay turning into soft stone. In his childhood, he had seen clay along the banks of the Oxus which was used for washing people's hair. Then, after 23 years, he observed that it had turned into soft stone. According to him, stones are formed out of flowing water in two ways: first, water solidifies as it drops or as it sinks; and, second, sedimentation of matter flowing with water then turns into rocks. It is

9. Ibn Sīnā, 1964, p. 24.
10. Ibid., pp. 24–5.
11. Ibid., p. 7.

observable, he says, that when running water drips continuously on a known spot, it coagulates as a stone or pebbles of different colours. Also, when some of the dripping water is taken away it does not solidify, but if it is placed on stony ground near its flow, it coagulates into a stone. Such a piece of land, he says, has mineral potential, for it metamorphoses into a solid body.[12]

In this whole process of the formation of land, seas and minerals, observes Ibn Sīnā, divine wisdom operates:

> If it was not so, animals breeding in *nasīm* [fresh air] would not find a natural place to live upon, and for this reason, some parts of the earth have become exposed as land. It is then only fitting that [the remaining portion] of the earth should be predominantly covered with water which in its right [nature] should cover all of it [i.e. the low-lying areas].

Here he is referring to the land mass and the oceans. Thus it is this process of substantiation of the elements and the action of the fixed stars, the sun and the planets that gives the earth its equilibrium and its spherical shape.

Ibn Sīnā also makes some interesting observations about meteors. They occur during thunderbolts and are iron and stone bodies whose fire goes out so that they then turn cool and dry. Such bodies fall in northern Persia, and when they fall they create devastation on earth. They are composed of dry copper and when people in Khwarazm tried to melt them into spears, they could not do so: a greenish smoke continued to rise from them until an ash-like substance remained. Ibn Sīnā gives the example of a heavy substance weighing 150 *manns* falling from the sky and making a hole in the earth and then settling down after bouncing once or twice and making a loud noise – the people were unable to make swords out of it. The whole experience was related to him by a certain ᶜAbd al-Wahid b. Muhammad al-Jūzjānī.

Ibn Sīnā further describes the causes of the formation of stones, mountains and the origins of springs which are caused by vapours, and the sources of water. His observations on earthquakes are interesting. They occur due to the movement of a piece of the earth underneath. The body that moves underneath the earth is either smoky and vaporous, as powerful as the wind, or a flowing, watery body, or an airy body, or a fiery body. Sometimes earthquakes occur due to causes above the earth, such as mountain peaks or large blocks (of stones) falling violently and causing an earthquake. This view was also held by Archimedes, who believed that earthquakes occurred due to heavy rains or scanty rains. But Ibn Sīnā points out that this school of thought was not totally correct, for earthquakes occur in places where there are no mountains, and are sometimes more severe than in places where there are mountains. Ibn Sīnā also disputes the view of Anaxagoras, who believed that earthquakes were caused

12. Ibn Sīnā, 1964, pp. 3–4.

by winds. He then describes the different types of lands and atmospheres where earthquakes occur, pointing out that the intensity of the earthquakes also varies and giving the names of different types of them.

Ibn Sīnā devotes a special section to the formation of minerals. He divides the minerals into four categories: stones, liquids, sulphur and salts. Some mineral bodies are composed of a thin substance and are of a weak composition, while others have a strong substance. The alchemists' claims about transforming one substance into another are baseless. What they can do is to change the colour of the substance, but its actual *jawhar* (substance) remains protected (i.e. unchanged). There is no way of transforming one temperament into another.[13]

AL-BĪRŪNĪ

Next to Ibn Sīnā, the scientist who dealt with geology and mineralogy in most detail was Abū Rayhān al-Bīrūnī (973–1048). His views are spread over many of his works, like the *Tahdīd nihāyāt al-amākin li-tashīh masāfāt al-masākin* [The Determination of the Co-ordinates of Locations and for Correctly Ascertaining the Distances between Places], the *Tahqīq mā li 'l-Hind* [Inquiry into What is to be Found in India] and the *Kitāb al-Jamāhir*. Al-Bīrūnī believed that the world (*al-ʿālam*) had come into existence in time (*hudūth*), as the Muslims believed, and that it was not pre-existent and eternal, as Aristotle held (see Chapter 5 above). The period of the creation of the world is not calculable in terms of human calculations, and there is no way of ascertaining it from the beginning of the creation.

On the formation of the earth, al-Bīrūnī held similar views to those of Ibn Sīnā, namely, that it arose from the natural adjustment of the four elements with each other at the centre of the universe. He says that the centre of the sublunar sphere is the earth, which in reality is the lowest part (this is a real centre, as all heavenly bodies gravitate towards it):

> The earth is globular and, in detail, a rough-surfaced body because of the mountains and the depressions; but these are negligible as compared to its huge size, and they do not affect its spherical form. If the earth's surface had not been so uneven, water surging from every direction would not have been retained by it and would certainly have submerged it, and it [the land] would no longer be visible. While water, like earth, has a certain weight and falls as low as possible in the air, it is nevertheless lighter than earth, which therefore settles in water, sinking in the form of sediments at the bottom. Moreover, although water does not penetrate the earth itself, yet it sinks into the latter's interstices and there gets mixed up with air. As a result, due to the intimate contact, it becomes suspended in the air. But when the air escapes to the

13. Ibn Sīnā, 1964, pp. 2–3.

> outside, water regains its natural state in the same way as does rain from the clouds. Then, on account of the various irregularities projecting from the surface of the earth, water tends to collect in the deepest places giving rise to streams. The earth and the water form one globe, surrounded on all sides by air. Then, since much of the air is in contact with the sphere of the moon, it becomes heated in consequence of the movement and friction of the parts in contact. Thus there is produced fire, which surrounds the air, less in amount in the proximity of the poles owing to the slackening of the movement there.[14]

When discussing the geological changes on the surface of the earth, al-Bīrūnī says that:

> they take a long period of time, the limits of which cannot be ascertained, nor can the mode of the change be described. The centre of gravity of the earth also changes its position according to the position of the shifting of matter on its surface. If the centre rises, it causes its surrounding areas to compress and the waters become scanty, etc. Hence it is said that this deterioration is due to old age, and the deteriorated land is called 'growing and becoming young'. For this reason, hot regions become cold and the cold ones become hot.

As an example, al-Bīrūnī cites a little-known earlier authority on astronomy, Abu 'l-Abbās al-Īrānshahrī (*fl.* later ninth century), according to whom the roots of a palm tree were discovered under dry land. Again, the sea turns into land and vice versa over the course of time. 'But if such changes took place on earth before the appearance of man, we are not aware of them; if they came after his appearance, then they were not recorded.' As an example, he cites the Arabian desert, which was sea at one time and then became filled by sand. In this region, bones, glass, etc., have been found which could not have been buried there by anyone. He also speaks of the discovery of 'stones which if broken apart, would be found to contain shells, cowry-shells and fish-ears'. By 'fish-ears' he must have meant fossils. So, he says, the ancient Arabs must have dwelt on the mountains of Yemen, when the desert was all sea. Similarly, the desert between Jurjan and Khwarazm (i.e. the modern Kara Kum) was, according to him, a lake, and the course of the Amu Darya (Oxus) up to the Caspian Sea lay through it, and passed by the Balkhan mountains.

The most significant example given by al-Bīrūnī is that of India, whose plain he conceives as having been a sea in the geological period by observing the different sizes and shapes of stones along the banks of the rivers in northern India. At the sources of the rivers, the stones are in the form of rocks, but gradually they acquire the shapes of smaller stones and finally turn into sand. His views can be compared to modern geological theories of the existence of a Mesozoic Sea, the Tethys, which at one time seems to have covered the whole

14. Ahmad, 1995, pp. 137–8.

of Central Asia and extended between the Mediterranean and New Zealand. We know today that the ancient continent of Gondwana gradually moved northwards and, according to the theory of continental drift, joined the northern land mass and created the Himalayas; it is still moving north-eastwards.[15]

Al-Bīrūnī rejects Aristotle's contention that the heavenly spheres do not possess gravity. As gravity causes the objects to move towards the centre, the heavens, because they are interconnected, are prevented from falling; otherwise, in their movement towards the centre, they would have fallen. Similarly, he rejects the idea that the natural place of water is above the earth, for there is no natural place for any substance. If water were allowed a free flow, it would have reached the centre.

Density

Al-Bīrūnī measured the density of substances, and al-Khāzinī describes an instrument used by al-Bīrūnī in measuring densities. It was a conical instrument which served as dosimeter, or hydrostatic balance. The substance to be weighed was placed in a vessel which was full of water. The displaced water was then weighed, and the result was the specific weight of that substance. The instrument appears to be based on the famous experiment of Archimedes. Al-Bīrūnī refers to another instrument called a *dahj* and to a lamp, in which the level of the water and the oil remained constant, since any excess drained out of the holes made for the purpose. He was able to measure the displaced water with such exactitude that his findings nearly correspond with modern values. He used gold, mercury, emerald and quartz, and determined their values, while the other substances were measured according to the fixed values shown in Table 1.

Hydrostatics

AL-BĪRŪNĪ

Hydrostatics was another field in which al-Bīrūnī made original contributions. He explained the phenomena of floods, bubbling springs and the principles involved in their motion and pointed out that the level and flow of water depended upon the level of the source of the water. He contended that the behaviour of water also depended upon other factors, such as the influence and pressure exerted by air; otherwise, water on its own would flow towards the

15. Ahmad, 1995, pp. 141–2.

TABLE 1. Relative densities of substances as measured by al-Bīrūnī and al-Khāzinī, compared with modern values

Substance	Al-Bīrūnī		Al-Khāzinī	Modern
	Measured by gold	*Measured by mercury*		
Gold	19.26	19.05	19.05	19.26
Mercury	13.74	13.59	13.56	13.59
Copper	8.92	8.83	8.66	8.85
Brass	8.67	8.58	8.57	8.40
Iron	7.82	7.74	7.74	7.79
Tin	7.22	7.15	7.32	7.29
Lead	11.40	11.29	11.32	11.35
	Measured by emerald	*Measured by quartz*		
Sapphire	3.91	3.76	3.96	3.90
Ruby	3.75	3.60	3.58	3.52
Emerald	2.73	2.62	2.60	2.75
Pearl	2.73	2.62	2.60	2.75
Quartz	2.53	2.58	-	2.58

Source: Saᶜid and Zahid, 1981, pp. 145–7.

centre of the earth. He explained these phenomena with the help of an instrument called *sarqalat al-mā'* (probably a syphon), in which the level of water remained constant in both the wings until the ends were placed in vessels filled with water and at equal heights. Then, when one end was lowered, the water would flow out of it due to earth's gravity. On the same principle, he explained the phenomena of springs or wells having a constant level, and also discussed the divisibility of water and space, the true form of fire, motion, etc.[16]

Al-Bīrūnī agreed with Aristotle that, originally, the earth was probably in a liquid state. His theories about the earth's distant origin stemmed from his observations of geological transformation and hence of the earth's antiquity. He compared the petrified and stratified remains discovered in the plains of Arabia, in Jurjan along the Caspian shores and in Khwarazm, which proved the existence of seas in these places in some bygone age, although such changes were historically unrecorded. He argued that the geological changes due to the action of water and air took a long time to complete. He also believed in the existence of land beyond the known inhabited zone, saying, 'There is nothing

16. Saᶜid and Zahid, 1981, pp. 146–7.

to prohibit the existence of habitable lands in the eastern and the western parts. Neither extreme heat nor cold stands in the way, and therefore it is necessary that some supposed regions do exist beyond (the known) remaining regions of the world surrounded by water on all sides.'[17]

AL-KHĀZINĪ

Contributions to mineralogy and astronomy were also made by Abu 'l-Fat'h ᶜAbd al-Rahmān al-Khāzini, who flourished in Merv *c.* 1115–30 and who worked under the patronage of the Seljuqs there. (For astronomy, see Chapter 7 above.) Al-Khāzinī's *Kitāb Mizān al-hikma* [Book of the Balance of Wisdom] deals primarily with the science of weights and the art of constructing balances. His hydrostatic balance leaves no doubt that, as a maker of scientific instruments, al-Khāzinī was among the greatest of his time. In this book he studies the hydrostatic balance, its construction and uses, and the theories of hydrostatics that lie behind it, as well as other related and unrelated topics. He built such a hydrostatic balance for Sanjar's treasury, similar to the one built by the scholar al-Isfizārī before him, calling his balance the *mīzān al-jāmiᶜ* and *mīzān al-hikma*. The primary meaning, then, of *mīzān al-hikma* is 'balance of true judgement', i.e. of accurate discrimination between pure and adulterated metals, between real gems and fakes. The work is well-stocked with miscellaneous incidental statements of interest – on the rising and sinking of mountains, for example, and on the natural production of gold out of lead.

Al-Khāzinī is especially indebted for significant material to al-Bīrūnī. The very careful explanation (in Book III) of refined instruments and methods of determining specific gravity come from a work by the latter on metallurgy. No real successors to al-Khāzinī in the art of constructing balances seem to have arisen in the Islamic world, but his work, and that of al-Bīrūnī, was used as a source by several later authors, such as Fakhr al-Dīn al-Rāzī (1148–1209) in his *Jāmiᶜ al-ᶜulūm* [Comprehensive Work on the Sciences]; al-Tīfāshī (d. 1253) in his *Azhār al-afkār*; and al-Qazwīnī in the mineralogical section of the cosmography, *ᶜAjā'ib al-makhlūqāt* (see below).[18]

AL-QAZWĪNĪ

Abū Yahyā Zakariyyā b. Muhammad al-Qazwīnī (*c.* 1203–83) seems to have left his native town of Qazvin in northern Persia at an early age, for in 1233 he was in Damascus, where he came under the influence of the Sufi Ibn al-ᶜArabī. He wrote two works: one on cosmography, the *ᶜAjā'ib al-makhlūqāt wa-*

17. Saᶜid and Zahid, 1981, pp. 154–5.
18. Gillispie (ed.), 1970–8, Vol. VII, pp. 335–48; Ahmad, 1995, pp. 145 et seq.

gharā'ib al-mawjūdāt [The Wonders of Creation and the Unique Phenomena of Existence]; and another on geography, which exists in two recensions: the *ʿAjā'ib al-buldān* [The Wonders of the Lands] (written in 1262); and the *Āthār al-bilād wa-akhbār al-ʿibād* [The Striking Features of the Lands and the Historical Relations of Mankind] (written in 1275).

Muslim cosmography had its origin in Greek cosmographic literature and was especially influenced by Aristotle. There was also an influence from Sufism, clearly evident in al-Ghazālī. The cosmographers held the view that there was an organic and spiritual relationship between everything that existed in the universe and that nothing, not even a single atom, was created by God without a purpose. Thus the entire creation was a manifestation of His wisdom and intelligence. It was for man to perceive and appreciate the creation and thereby achieve *saʿāda* (happiness) in the hereafter. This is the central idea dominating al-Qazwīnī's work. Using more than 100 written and oral sources, including Aristotle, Ptolemy, Dioscorides, Ibn Sīnā and others, he described the qualities of minerals, plants and animals and dealt with the origins of life on earth.[19]

Geography and cartography

From the ninth to approximately the sixteenth century, Muslim scholars, including those working in the eastern lands, made important contributions to Arab-Islamic geography.[20]

AL-KHWĀRAZMĪ

Among the pioneers in this field was Muhammad b. Mūsā al-Khwārazmī (*fl.* first half of ninth century), who made contributions in the fields of astronomy, mathematics, mathematical geography and cartography. He was a member of the team of scholars who, under the leadership of Yahyā b. Abī Mansūr, established astronomical observatories, one in Baghdad and the other in Damascus (see Chapter 7, above). In the field of mathematical geography, his *Kitāb Sūrat al-ard* [Book of the Map of the Earth] is the earliest extant work on the subject. It is a reasonably accurate description, in tabular form, of the world map which he drew and it contains the co-ordinates of places. It is arranged according to the seven climes and is based on Ptolemy's *Geography*, with additional information gathered by the author. The world map is lost, but it has now been reconstructed on the basis of the data given in his book.[21]

19. Ahmad, 1995, pp. 227–8.
20. See ibid. for a general survey of Arab-Islamic geography; and *EI*², 'Kharīṭa' (S. M. Ahmad) for cartography.
21. Jaʿfri, 1984.

Al-Khwārazmī's world map should not be confused with the one drawn by al-Ma'mūn's scientists, which is referred to by early authorities as *al-Sūra al-Ma'mūniyya* [Al-Ma'mūn's Map]. Al-Mas^cūdī, who had seen the map, describes it as 'more exquisite than the world maps of Ptolemy, Marinus and others'. Al-Khwārazmī does not describe the technique of drawing a map, as does the tenth-century scholar Ibn Serapion (Suhrāb) (see below). Muslim cartographers seem to have followed Marinus in drawing the climes as straight lines, and avoided projections, although Ptolemy had disapproved of Marinus' method in general. However, the cartographic method was criticized by some scientists, and al-Zuhrī did not approve of the technique adopted by al-Khwārazmī. In his view, it did not conform to reality for, while the earth is globular in shape, the map was spread out like an astrolabe, enabling the viewer to know everything it contained at a glance.

IBN SERAPION

Ibn Serapion, who was probably of Persian origin, produced a work on mathematical geography, the *Kitāb ^cAjā'ib al-aqālīm al-sab^ca* [Book of the Wonders of the Seven Climes]. This work was largely based on al-Khwārazmī, though Ibn Serapion describes the work as a summary of the information collected by him from various earlier writers for the benefit of the cartographers; he explains the technique of drawing a map in his introduction. His work differs from that of al-Khwārazmī's in that the former adds 5' to the co-ordinates given by al-Khwārazmī.

AL-JAYHĀNĪ

Certain Central Asian scholars made significant contributions to geography. Under the Samanids, Bukhara had become a centre of Islamic learning and it was here that one of the greatest patrons of geographic learning, the vizier Abū ^cAbd Allāh Muhammad b. Ahmad al-Jayhānī, flourished in the first half of the tenth century. He was the author of a *Kitāb al-Masālik wa 'l-mamālik* [Book of Roads and Kingdoms], unfortunately lost. Probably compiled in the same tradition as the work of the ninth-century geographer Ibn Khurradādhbih, it must have been very comprehensive and original on the subject, as we learn from its description by later writers such as al-Mas^cūdī, Ibn Hawqal, al-Maqdisī and Gardīzī. Al-Maqdisī is, however, very critical of al-Jayhānī's method of dealing with the subject. He points out that it contains descriptions of forlorn stations and deserted halting places but does not describe the provinces or distribution of the districts. Nor does it describe the towns or give details of them. On the other hand, Gardīzī, al- Mas^cūdī and Ibn Hawqal are full of praise for the author.

In Barthold's opinion, al-Jayhānī wrote his work on the basis of data he

himself had collected but he also used, to a considerable extent, the work of Ibn Khurradādhbih.[22] It is a mystery why al-Jayhānī's work has not survived; in Minorsky's opinion, this was probably on account of its bulkiness, so that we know it only through the references found in numerous authors belonging chiefly to the eastern parts of the Islamic world.[23] Al-Jayhānī was suspected of being a dualist, hence it is possible that his work suffered the same fate as that of the works of Ahmad b. al-Tayyib al-Sarakhsī and al-Masᶜūdī, as allegedly the writings of heretics and unorthodox people.

AL-BALKHĪ

After al-Jayhānī, an important school of Arab-Islamic geography developed, one which had a far-reaching influence. The founder of this school was Abū Zayd Ahmad b. Sahl al-Balkhī (d. 934). In his early youth, al-Balkhī had travelled to Baghdad, where he studied under the well-known philosopher Abū Yūsuf al-Kindī (d. *c.* 866). In his youth, al-Balkhī had Shiᶜite sympathies but after his return to his native land, he seems to have abandoned these. Al-Jayhānī was at first his patron, and used to send him presents of female slaves, but later withdrew this patronage because of al-Balkhī's *Kitāb al-Qarābīn wa 'l-dhabā'ih* [Book on Sacrifices and Offerings], which al-Jayhānī disliked. Al-Balkhī served the state during the short administration in Khurasan of the *dihqān* (landowner) of Merv, Ahmad b. Sahl (918–19), but after Ahmad b. Sahl's fall, he lived as a private individual on his own lands.[24]

Al-Balkhī was the author of a geographic treatise conventionally known as the *Suwar al-aqālīm* [Images of the Climes], but the authenticity of this title has yet to be ascertained. According to al-Maqdisī, who had seen and utilized al-Balkhī's work, it was called *al-Amthila wa-suwar al-ard* [Similitudes and Images of the Earth]; al-Maqdisī had seen several manuscripts of the work in different sections. Al-Balkhī produced his work in 920 or a little later, hence in his old age. It dealt exclusively with the *mamlakat al-Islām* (Islamic lands), excluding the rest of the world. In all probability, it was a brief comment on the maps of the Islamic lands which he had drawn. Even though the original text of al-Balkhī's work has not yet been established, and the manuscripts at one time attributed to him have now been proved to be those of al-Istakhrī, it nevertheless seems that al-Istakhrī's work represents a second and greatly enlarged edition of al-Balkhī's geography, being compiled between 930 and 933 in al-Balkhī's own lifetime.[25]

22. Bosworth, 1970, p. 12.
23. Minorsky, 1947–8, pp. 889–96.
24. Ahmad, 1995, pp. 74–5.
25. Ibid., pp. 76–7.

OTHER GEOGRAPHERS OF THE BALKHĪ SCHOOL

Besides al-Istakhrī (d. mid-tenth century), whose *al-Masālik wa 'l-mamālik* [Roads and Kingdoms] is extant, those who followed the Balkhī school included Ibn Hawqal, author of the *Kitāb Sūrat al-ard*; al-Maqdisī (d. *c*. 990 or shortly thereafter), author of the *Ahsan al-taqāsīm fī ma^crifat al-aqālīm* [The Finest of Divisions Concerning Knowledge of the Climes]; and Abu 'l-Fidā (d. 1331), author of the *Taqwīm al-buldān* [Correct Account of the Lands]. It is also likely that the Timurid historian Hāfiz Abrū (d. 1430) also followed al-Balkhī in his treatment of geographic material and maps.[26]

The geographers of the Balkhī school divided the Islamic empire into 20 or more *iqlīms* (provinces; originally 'climes') and drew maps for each of the *iqlīms* separately. Al-Balkhī had emphasized the geography of the Islamic world and had assigned the foremost position to the description of Arabia and the holy city of Mecca; hence they did not consider it worthwhile to include the non-Islamic world in their descriptions. This was a departure from the concept of the early geographers like Ibn Khurradādhbih, al-Mas^cūdī and others, who described the whole world as they knew it, even though some of them began their descriptions with Arabia and Mecca. The geographic ideas of the Balkhī school of geographers are a reflection of the conservatism and religious thought of its originator. It is evident that he and his followers reorientated geographic knowledge so as to bring it into line with some of the concepts found in the Qur'an.

These new trends gave a special religio-political character to Arab-Islamic geography which had hitherto been absent, with Mecca at the centre of their world maps. In each *iqlīm*, the cities and districts are described and the roads and distances listed. There is no mention of the latitudes and longitudes, nor is there any indication of the co-ordinates in their maps. Under each *iqlīm*, its geographic features, the social and cultural life of the people belonging to it and other aspects are described. The geographers conceived of the Indian Ocean and the Mediterranean as coming very close to each other at the isthmus of Suez (*al-barzakh*) but separated by it, a concept that conforms to the Qur'anic verse on the *majma^c al-bahrayn* (mingling together of the two seas) and the *barzakh*, or isthmus, separating them (55:19–20). Since the division into *iqlīms* was made purely on a territorial basis, it was thus a step forward in the foundation of regional geography. The followers of this school did describe the non-Islamic lands, but only briefly in their introductions. Another important contribution of theirs was that they enlarged the scope of geography by including new topics which they thought would be useful and interesting. For the first time they presented the concept of a country (*iqlīm*) in geographic terms, and even went so far as to define its boundaries.

26. Ahmad, 1995, pp. 79–87, 195, 218 et seq.

An important question that needs to be answered is why al-Balkhī introduced a new school in geography, which was to have a profound influence on the future growth of geography, producing several eminent geographers who followed its methods. There can be only two plausible explanations. First, after having studied under al-Kindī, a philosopher with Muᶜtazilite tendencies, al-Balkhī seems to have turned – in reaction to orthodoxy – to the more liberal atmosphere prevalent in his homeland at the time, and he now gave geography a religio-political colour. Second, it seems that it was a reaction to the Iraqi school of geographers, and also to the work of al-Jayhānī, which dealt with the known world at large and not the Islamic world exclusively.[27]

Al-Bīrūnī's *al-Qānūn al-Masᶜūdī* is basically a work on astronomy but it also has a chapter on the co-ordinates of important cities of the world; in his *Kitāb al-Tafhīm li-awā'il sināᶜat al-tanjīm* [Book of Instruction in the Elements of the Art of Astrology], he deals with the basic principles and concepts of astronomy and geography; and in his *Tahqīq mā li 'l-Hind*, he deals, among other topics, with the geography of India and its road systems. He describes the extent of the Encircling Ocean (*al-Muhīt*) around the Old World land mass, with its known and unknown stretches.[28] It was generally believed by the Muslim geographers and cartographers that, in the southern quarter of the earth, there existed a *terra incognita* which covered the whole of the quarter and was connected with southern Africa, a concept inherited from Aristotle and Ptolemy. Hence it was believed that the Indian Ocean had no sea-link with the Atlantic. In dealing with the equilibrium theory of the earth, al-Bīrūnī held that gulfs existed south of the sources of the Nile that connected the Indian Ocean with the Atlantic. He argued that, just as the Indian Ocean had pierced the northern land (in South-East Asia), at many points creating large numbers of islands by its impact, similarly, the land in the southern sea, towards the west, had been pierced by the sea. His theory was incorporated by Abu 'l-Fidā' in his own work and was to have a great influence on navigators of later times.

Ibn Sīnā's views on geology and geomorphology have been discussed above. He also wrote several epistles on astronomical geography and a discourse on the roads and regions of the world, so far untraced, but it obviously dealt with descriptive geography.[29]

A unique work describing the linguistic distribution of the Turkish tribes was compiled by the lexicographer Mahmūd al-Kāshgharī (*fl.* second half of eleventh century) in his Arabic work, the *Dīwān lughāt al-Turk* [Compendium of the Turkic Dialects] (written between 1072 and 1074). He drew a map of the world depicting the linguistic distribution of the Turkish tribes, in which

27. Ahmad, 1995, pp. 78–9.
28. Ibid., pp. 139–40.
29. Ibid., p. 129.

Kashghar is placed at the centre of the Turkish tribal settlements; none of the Arab-Islamic geographers had attempted to draw such a map.[30]

Finally, one should mention that Arabic was not the universal language for geography at this time. In *c.* 982, an unknown author produced, for a local ruler of Guzgan (in what is now northern Afghanistan), a geography in Persian, which he called the *Hudūd al-ᶜālam* [The Limits of the World]; it is especially valuable for the ethnological information it provides on the Turkish tribes of Inner Asia.

Part Two

The Silk Route across Central Asia

(K. Baipakov)

In 629 the Buddhist pilgrim Hsüan-tsang set out from China to India, 'to look at the sacred remains of Buddha and seriously to study theology'. He followed the international highway which connected China with the West and served as a conduit of technological innovations, religious ideas and cultural achievements.

Travelling on Bactrian camels with a merchant caravan from Chang'an, skirting the great Gobi desert through Dunhuang, passing through the salt desert known as 'the Dunes of the Great Dragon', the oases of Hami and Turfan, along the northern slopes of the T'ien Shan, and across the ice mountains, which apparently correspond to the Muzur-Ola, Hsüan-tsang and his companions finally arrived at the 'Transparent Blue Lake'. This was also known as 'Hot Lake' and it is not hard to recognize it as Lake Issyk-kül. Having gone around the lake, the pilgrim arrived at the city of Suyab, where he met the Turkic Kaghan, ruler of a vast Inner Asian empire, the western borders of which extended as far as the Black Sea. Hsüan-tsang gives the following description of the Turkic Kaghan and his courtiers:

> These foreigners had excellent horses. The Kaghan was dressed in a robe of green silk; his head was bare and wrapped only in a silk band more than one *zhang* (3.2 m) in length, with its ends hanging behind. He was attended by over two hundred *tarkhans* [commanders] dressed in robes of brocade, with braided hair. The rest of the warriors, dressed in fur-lined garments and soft hats, carried halberds, banners and bows. Those mounted on camels and horses were so many that the eye could not take them all in.

30. Al-Kāshgharī, 1982–4, Vol. 1, map facing p. 82.

In describing the reception with which the Kaghan honoured him, Hsüan-tsang repeatedly stresses the luxury of the silk clothing of the Turkic nobility and also tells of the gifts he received: 'a whole suit of clothes of raspberry-coloured satin, and fifty pieces of silk'.[31] In this passage – whether consciously or not – reference is made several times to silk, the major commodity of trade between East and West, and which gave its name to the great transcontinental route of antiquity and the Middle Ages. Along with gold, silk became an international currency. It was given to kings and ambassadors, and used to pay state debts and the salaries of mercenary soldiers.

In the second to the fifth century, the Silk Route, starting from the East, began in Chang'an, went to the crossing of the Huang-Ho (Yellow River) near Lanzhou, and continued along the northern spurs of Nien Shan to the western end of the Great Wall of China and the Outpost of the Jasper Gate. Here the single road divided into three, skirting the Taklamakan desert to the north and south. The northern road went through the Hami, Turfan, Beshbalïk and Shiho oases to the valley of the Ili river; the middle road went from Shan-shan to Kashghar, Aksu, and over the Bedel pass to the southern shore of the Issyk-kül; and the southern road went through Dunhuang, Khotan and Yarkand to Bactria, India and the Mediterranean – this was the so-called 'southern route'; the 'northern route' went from Kashghar to Ferghana, and further on through Samarkand, Bukhara and Merv to Hamadan and Syria.

In the sixth to the seventh century, the most intensely used road was the one that led from China to the West through Semirechye (the 'Land of the Seven Rivers') and southern Kazakhstan, although the former way was shorter and more convenient. This change of route can be explained as follows: first, Semirechye was the location of the headquarters of the Turkic Kaghans, who controlled the trade routes through Central Asia; second, the road through Ferghana became dangerous in the seventh century owing to civil strife; and third, the wealthy Kaghans and their entourage became major consumers of imported goods.[32]

Thus this became the main route, used from the seventh to the fourteenth century by the majority of ambassadorial and mercantile caravans (see Figs. 1 and 2). The direction of the Silk Route was not something fixed, however: over the course of the centuries some parts or branches of it gained greater or lesser significance, while others died off and the towns and trading posts located on them declined. Thus, in the sixth to the eighth century, the major highway was Syria–Iran–Transoxania–southern Kazakhstan–the valley of the Talas–the valley of the Chu–the Issyk-kül basin–East Turkistan. A branch of this road, or, rather, yet another route joined to this highway, came from

31. Hsüan-tsang, 1904–5, Vol. 1, pp. 74–81.
32. Grousset, 1970, pp. 90–101.

Byzantium through Darband to the steppes of the Caspian region, the Mangïshlak peninsula–Aral Sea basin, and thence to southern Kazakhstan. It bypassed Sasanian Iran, and there were trade and diplomatic relations between the Western Turkish Kaghanate and Byzantium in order to achieve this. Later, in the ninth to the twelfth century, this route was used less intensely than the one passing through Central Asia, the Middle and Near East and Asia Minor to Syria, Egypt and Byzantium. But in the thirteenth to the fourteenth century, when the Mongol empire was formed, and then the Golden Horde, with its centres in the Volga basin, this route revived again. The political situation defined the choice of itineraries by diplomats and merchants. At precisely that time, such European travellers as Plano Carpini, William of Rubruck and Marco Polo passed that way.[33]

The main artery of the Great Silk Route, as it crossed Central Asia, passed through and connected all the major urban centres of the region – Nishapur, Tabriz, Ghazna, Merv, Sarakhs, Termez, Bukhara, Samarkand, Chach, Urgench, Isfijab, Taraz, Utrar, Balasaghun, Kayalïk, Almalïk, Akhsikath and Kashghar. Each of them was a junction of numerous minor roads that connected the central highway with provinces and regions, mountain gorges and steppes.

One of the major junctions in Central Asia was Merv, where several branches of the Silk Route came together. One went south through Herat to the Persian Gulf; another through Sarakhs and Nishapur to Mesopotamia; a third through Abiward and Nasa to the west; and a fourth northwards through the Kara Kum to Khwarazm. Bukhara also played a major role: through it passed the roads connecting the Silk Route with Khwarazm, Chach, southern Kazakhstan and the Aral region. Among the well-known international trading centres of the Bukhara oasis were Paikent and Varakhsha. Through Varakhsha, the route went across the sands to the Amu Darya (Oxus), and then along its right bank to Kath, capital of Khwarazm. From Samarkand, roads went to Chach and Ferghana: one way led through Khawass to the River of Chacha, and thence to Binakath, capital of Chach; another led through Kurkat and Samgar to Akhsikath, capital of Ferghana. The latter region was an important centre of international trade, and through it the way led to Kashghar, Semirechye, the T'ien Shan and Sogdia; likewise, Chach was connected with southern Kazakhstan, Semirechye and Khwarazm. In what is now southern Kazakhstan, the major trading centre was Isfijab, from whence caravans went east to Semirechye, through the cities of Madankath, Budukhath, Taraz, Kulan, Navakath, Suyab, and further on into East Turkistan. In Navakath the road forked, and its northern branch passed through the Ili valley. Through them the Silk Route went to the Dzungarian Gates, and thence to Almalïk and further on into western China.

33. Yule and Cordier, 1914, Vols. 2 and 3.



FIG. 1. East Turkistan. Terracotta showing a mercantile caravan (seventh–eighth century). (Photo: Courtesy of K. Baipakov.)



FIG. 2. Syrian glass bottle found at Utrar (twelfth–thirteenth century).
(Photo: Courtesy of K. Baipakov.)

From Isfijab, one of the major branches went along the right bank of the Syr Darya (Jaxartes), through Arsubanikath, Utrar, Yasi (Turkistan), Sïgnak and Yengi-kent to the Aral region, and thence to the Urals. The other led through Utrar and across the Kyzyl Kum to Khwarazm, thence to Mangïshlak, to the Ural estuary, through the city of Old Saray, to the Volga, the Don and the Crimea.

From the major artery of the Silk Route that went through what is now southern Kazakhstan and Semirechye, roads split off to the north and the east, leading to what was from the eleventh century known as the Dasht-i Kïpchak steppe (later the Sari-Arka steppe), the banks of the Irtysh, the Altai mountains and Mongolia.

The road from Yengi-kent went to the north-east, reaching the banks of the Beleuta river and leading to the region of modern Kungrat and Karsakpay. The so-called Sarysu road led from Utrar through Shawghar and the Turlan pass over Aksumba, to the lower reaches of the Sarysu, and up along the river to Alatau, and from there along the Ishim and the Irtysh. A shorter way led through Suzak to the lower reaches of the Chu, and from there through Betpak-dala to the region of Jezkazgan. Yet another road – the 'Khanzhol' – went from Taraz, down along the Talas, through Muyun Kum and Betpak-dala to the shores of the Atasu.

From the main artery of the Silk Route, which went to the Dzungarian Gates, a side road split off which went around Alakol from the west and led through Tarbagatay to the Irtish, in Kimak and Kyrgyz territory. In Tarbagatay and on the banks of the Irtysh were the Kimak settlements of Banjar, Khan ᶜAyyash, Astur, Sisan and the 'Kaghan's capital', described as surrounded by a fortified wall with iron gates. The settlements of the Kimak were connected by trade routes with the Kyrgyz settlements on the Yenisey, the Uighur towns and the oases of East Turkistan. The road which connected the Silk Route with the north led through the southern Aral region to the basin of the Kama river. (See also Volume IV, Part One, p. 85, and Volume II, Map 5.)

In the beginning, as has been pointed out, the Silk Route served to export Chinese silk to the countries of the West. In their turn, Rome, Byzantium, India, Iran, the Arab caliphate, and later Europe and Russia sent goods of their own production along it. It was therefore quite natural that some of the silk, as well as a portion of the other goods that travelled via the Silk Route, should have remained along the way in the settlements along its routes – as borne witness by numerous spectacular archaeological finds.[34]

34. See in general on the Silk Route, Boulnois, 1966; UNESCO, 1994.

9

ALCHEMY, CHEMISTRY, PHARMACOLOGY AND PHARMACEUTICS

A. Abdurazakov and Ts. Haidav

Part One

ALCHEMY AND CHEMISTRY IN ISLAMIC CENTRAL ASIA

(A. Abdurazakov)

The Central Asian contribution to these scientific disciplines has been the subject of very little detailed study; the kind of specialized overview that would set the history of chemistry and the related sciences throughout the region in a proper perspective is, for the moment, lacking. This is obviously due in part to the fact that the subject calls for an interdisciplinary approach involving chemists, historians, archaeologists, geologists, botanists, medical and pharmaceutical scientists and other specialists.

Origins

The very earliest work on chemical processes and transformations was done in the ancient world, in Egypt, Mesopotamia (Assyria and Babylon), India and China. But the roots of chemical and pharmacological knowledge are also to be found in Central Asia's distant past. In so far as chemical science is concerned with substances, their transformation and their properties, its origins are interwoven with the emergence of those productive activities which later developed into crafts. Unlike many other parts of the world, the heartlands of Central Asia were well endowed with raw materials that permitted the local development of metallurgical activities; the Zarafshan valley in Sogdia was particularly rich in deposits of copper, arsenic, lead and antimony, the principal constituents of bronze.

During the early Middle Ages, irrigation-based agriculture constituted the principal human activity in Central Asia. But mining and handicrafts also underwent considerable development. Deposits of raw materials in Ferghana and Sogdia (gold, cinnabar, copper, iron ore), at Ilaq (lead, silver and gold) and

in the region of Shahr-i Sabz (red salt) were worked intensively. Traditional handicrafts of all types continued to thrive. The period between the fifth and the eighth century saw significant progress in silk-weaving, glass-making and pottery.

The Eastern tradition of early chemistry and alchemy

After the advent of Islam in the Middle East and the lands to the east, into which Islamic civilization gradually penetrated, knowledge of the Graeco-Roman scientific, mathematical, astronomical and medical heritage was passed to such regions as Khurasan, Transoxania and Khwarazm. Notable scholars in the Islamic East included the chemist and physician, and pupil of the alchemist Jābir b. Hayyān, Abū Bakr Muhammad b. Zakariyyā al-Rāzī (865–925), who worked in his native Rayy and in Baghdad and was connected with the Buyid rulers there.

AL-RĀZĪ

Although al-Rāzī was a polymath, his major works were devoted to medicine and alchemy, including no fewer than 26 treatises on chemistry,[1] only 4 of which, however, have survived. Among these is his *Kitāb al-Madkhal al-taᶜlīmī* [An Introduction to Teaching], a basic manual containing brief descriptions of the substances and apparatus used in alchemy. Most importantly, in the final section of the work, al-Rāzī provides summaries of another dozen of his works, which were also devoted to alchemy.

The *Kitāb al-Asrār* [Book of Secrets] constitutes al-Rāzī's principal and most detailed contribution to chemistry.[2] Among its component sections are two devoted respectively to apparatus and operations. In the first of these, he divides apparatus into two groups: apparatus and implements used in the smelting of metals; and apparatus used in the processing of non-metallic substances. The first group includes furnaces, bellows, crucibles, hammers, tongs, kilns with superimposed crucibles known as *but-bar-but* (literally, 'crucible-on-crucible'), scissors and crushers. The second group includes various types of alembic (*anbīq*); the kiln known as *mustafād*; assorted cups, bottles and phials; glass mortars; pestles; the stove known as *attūn*; braziers; ventilators; clay boxes; and round stoves. Mention is also made of moulds, pitchers, bottles for rose-water, clay pitchers, kettles, the aludel (a condensing vessel), lids, baker's ovens, glass funnels, sieves made of metal, horsehair and silk, pans, basins, dishes, lamps,

1. Karimov, 1957, pp. 37–9.
2. Ibid., pp. 60–1.

sand and water baths, troughs, jars, glass cups, *dann* (a container for wine), *sardāb* (a filtration jar), fine sieves, pitchers, pans, griddles, files, iron ladles, oil lamps and other objects. Obviously, al-Rāzī's laboratory contained all that was needed to carry out successful chemical experiments and did not differ significantly from a British laboratory 1,000 years later.[3] The section on chemical operations describes smelting, decantation, filtration, digestion (steeping at high temperatures), distillation, sublimation, amalgamation, diffusion, coagulation and others.

The *Kitāb Sirr al-asrār* [Book of the Secret of Secrets], written by al-Rāzī at the request of his closest disciple and collaborator, Abū Muhammad b.Yūnus of Bukhara, contains a wealth of information on chemistry and chemical technology during the ninth and tenth centuries. Whereas his *Kitāb al-Asrār* is a treatise on chemistry as it was understood and practised at the time, in this other book, the author describes the actual operations whereby different alloys resembling silver and gold may be obtained, mentioning not only the most common methods, but also methods whereby these processes may be speeded up.

Al-Rāzī's philosophy was of an elemental-materialistic nature, based on the five pre-eternal principles: creation, soul, matter, time and space. According to him, all bodies consist of indivisible particles (atoms) with empty space between them. The atoms are eternal, unchangeable and of specific dimensions. The fundamental properties of substances, which correspond to the four Aristotelian essentials of earth, water, air and fire, as well as their qualities of lightness or heaviness, opacity or transparency, and softness or hardness, are determined by the dimensions of their constituent atoms and the surrounding vacuum. The size of the empty space between the atoms which make up the four essential elements determines their natural movement. Thus the dense elements, water and earth, move downwards, while fire and air move upwards. While Aristotle ascribed movement to a primal shock, or creational impulse, al-Rāzī considered that the principle of movement was inherent in bodies themselves.[4] To some extent, he anticipated in his *Kitāb al-Asrār* the phlogiston theory later developed by the German chemists Becker (1635–82) and Stahl (1660–1734). Al-Rāzī held that all metals and substances are composed of flammable (i.e. sulphurous and oily) ingredients and ash; burning or roasting consumes the combustible part (and, according to Stahl, releases phlogiston), leaving the calcinated part behind.[5] He was also familiar with the reverse process – known as *istinzāl* (descent) – whereby metals were purified by smelting: metallic oxides were mixed with olive oil, soda or copper (which Stahl believed

3. Singer, 1948, p. 50.
4. Karimov, 1957, p. 35.
5. Ibid., pp. 69–70.

to be rich in phlogiston) and heated in a special piece of apparatus known as the *but-bar-but*. In the course of firing, the metal, in a reconstituted form, flowed into the lower crucible. Thus 12 drams of lead or copper oxide, or white-lead, yielded 4 or 5 drams of metal.[6]

The *Kitāb Sirr al-asrār* is a veritable laboratory logbook, in which al-Rāzī made notes of the many experiments he conducted in order to smelt various metals in different proportions and establish their chemical composition. Unusual for his time, he recorded his own observations. He was the first to advance the extremely original idea that chemical processes could be accelerated. He was also the first to distinguish between reversible and irreversible reactions, suggesting the possibility that the product of a given reaction could be restored to its original state. He wrote:

> Do you not know that we can reconstitute [a substance]? When the operation is irreversible, this cannot be done. For example, glass, which is obtained from sand and potash, cannot be made to revert to those two original components. Nor can glazed earthenware be changed back into clay and water . . . But if you take burnt copper, heat it to incandescence, extinguish it in olive oil and subject it to *istinzāl*, then it will once again revert to copper.[7]

AL-FĀRĀBĪ AND HIS SUCCESSORS

Another outstanding philosopher and encyclopedic scholar of medieval Central Asia was Abū Nasr Muhammad al-Fārābī (d. 950); as an advocate of the importance of alchemy, he was the author of a treatise entitled the *Risāla fī Wujūb sinā ͨat al-kīmiyā'* [On the Need for an Art of Chemistry]. In the succinct encyclopedia of technical terms of both the 'Arab' and the so-called 'foreign' arts and sciences, the *Mafātīh al-ͨulūm* [Keys of the Sciences], by Abū ͨAbd Allāh al-Khwārazmī (*fl.* second half of tenth century), there is a section on alchemy which is in three parts. The first part describes the apparatus used in alchemy; the second is devoted to substances; and the third deals with ways and means of processing substances. His eleventh-century compatriot, ͨAbd al-Hakīm al-Khwārazmī, made a special study of the weights of the substances used in alchemical experiments. Surviving manuscripts on alchemy include works by many other medieval scholars, including Ibn Umayl al-Tamīmī (*c.* 900–*c.* 960), al-Khwārazmī al-Kāsī (eleventh century), the Seljuq vizier al-Tughrā'ī (d. 1121) and Ibn Arfaͨ Ra'sahu (twelfth century).

An authority on alchemical literature, U. I. Karimov, divides the basic sources in Arabic into two distinct groups. To the first, he assigns works of a genuinely scientific nature, lacking all trace of mysticism and containing clear

6. Karimov, 1957, p. 70.
7. Ibid., pp. 64–91.

and unambiguous descriptions of practical operations, comprehensible to the modern scientist. These include many of the works of Jābir b. Hayyān and al-Rāzī, and of scholars from Khwarazm and elsewhere. The second group comprises works on alchemy which have a religious and mystical character and are written in an incomprehensible language of allegory and veiled allusion. These include the almost certainly apocryphal treatises of the Umayyad prince Khālid b. Yazīd (d. *c.* 704), traditionally regarded as the proto-alchemist, and the works of the shadowy figure Ibn al-Wahshiyya (ninth century), Ibn ᶜUmayl al-Tamīmī, Ibn Arfaᶜ Ra'sahu and others.[8] Several of the scholars in the first group were natives of Central Asia or Khurasan and their works are written in a scientific vein, reflecting an abundance of factual material accumulated in various branches of practical chemistry and throwing light on the level of development and the technology of many branches of small-scale manufacture, including, for example, glass-making, metallurgy and the production of building materials.

Medicine and pharmacology

AL-RĀZĪ

Al-Rāzī's most famous medical work was his great compendium on medicine, the *Kitāb al-Hāwī fi 'l tibb* [Comprehensive Work on Medicine], on which he laboured for 15 years and which was still unfinished at his death. This enterprise, which was completed by his pupils, comprises 30 volumes, covering all branches of medieval medicine. It is set out in the form of a vast overview of the subject and includes quotations from the ancients, Greek and Indian, complemented by the author's own commentaries and personal observations. Diagnosis and prognosis, and their consequences for the choice of therapeutic measures, are treated in considerable detail. Al-Rāzī was a powerful advocate of the use of chemical substances in medical practice, and of testing medicines on monkeys before prescribing them for human beings. As the director of a hospital in Baghdad, he was the first Eastern specialist to bring order to the study of the history of different illnesses; he made daily notes of changes in the condition of his patients from the time they entered his charge, and used the information so obtained to determine the specific nature of diseases and their effect on the human organism.[9]

His second most important medical work was the 10-volume study that he dedicated to the Samanid governor of Rayy, Mansūr b. Is'hāq, the *Kitāb al-Tibb al-Mansūrī* [Book of Medicine Written for Mansūr]. Each book of this

8. Karimov, 1957, p. 18.
9. Kadyrov, 1994, p. 43.

was devoted to a specific medical topic: anatomy and physiology; temperament; simple medicines; the means of preserving health; skin diseases and cosmetics; dietary principles for travellers; surgery; poisons (toxicology); the pathology of different organs of the human body, from head to toe; and fevers. The ninth book, on pathology, enjoyed great popularity in Europe and was a seminal work in medicine up to the sixteenth century. Al-Rāzī further devoted particular attention to anatomy and physiology, individual diseases, surgery and the practice of medicine, concerning which he wrote on such subjects as the preparation of remedies; purging in the case of a 'hot' mixture of humours (*mizāj*); chemical preparations; mud cures; and the properties of intoxicating and non-intoxicating wines.[10]

An apothecary's shop and adjacent chemical laboratory, which have been dated to the late eighth century, were discovered during archaeological excavations in the small trading centre of Paikent, 44 km from Bukhara (Fig. 1). The premises contained everything necessary for the preparation of medicines: kilns and furnaces of various types; storage pits; areas and covered spaces for vessels to contain the medicines; a cellar (*sardāb*) for storing chemical substances and raw materials; ceramic vases and bowls; cups; an ink-well; a hand-mill; fragments of glass and 13 intact glass vessels. All the glass vessels belong to a single type of the special apparatus known in the literature as *al-anbīq* (from which the word 'alembic' is derived).[11] There is an especially wide selection of ceramic vessels and bowls characteristic of laboratory equipment. Here, too, together with a large collection of copper coins (*fulūs*, sing. *fals*) dating from the early ᶜAbbasid period (second half of the eighth century), were found two ceramic jars inscribed in Arabic. One bears what appears to be a list of personal names; and the other, a date corresponding to 30 June 790. A small bronze cup with traces of wax on the bottom was also found in the same place. Wax is known to have been very widely used in Eastern medicine as a component of ointments and medicines. In fact, finds of vessels containing vestiges of medicines are by no means rare.

Other early authorities

Among the scholars of Eastern Islam who wrote pharmacological and pharmaceutical textbooks was Abū Mansūr Muwaffaq b. ᶜAlī Harawī, with his *Kitāb al-Abniya ᶜan haqīq al-adwiya* [Book of the Foundations of the True Essence of Drugs and Medicines], written in New Persian in 950 under the Samanids. It contains descriptions and recipes for 585 medicines, including 466 obtained from plants, 75 from mineral substances and 44 from substances of animal origin.

10. Kadyrov, 1994, p. 89.
11. *EI*², 'al-Anbiḳ' (E. Wiedemann).

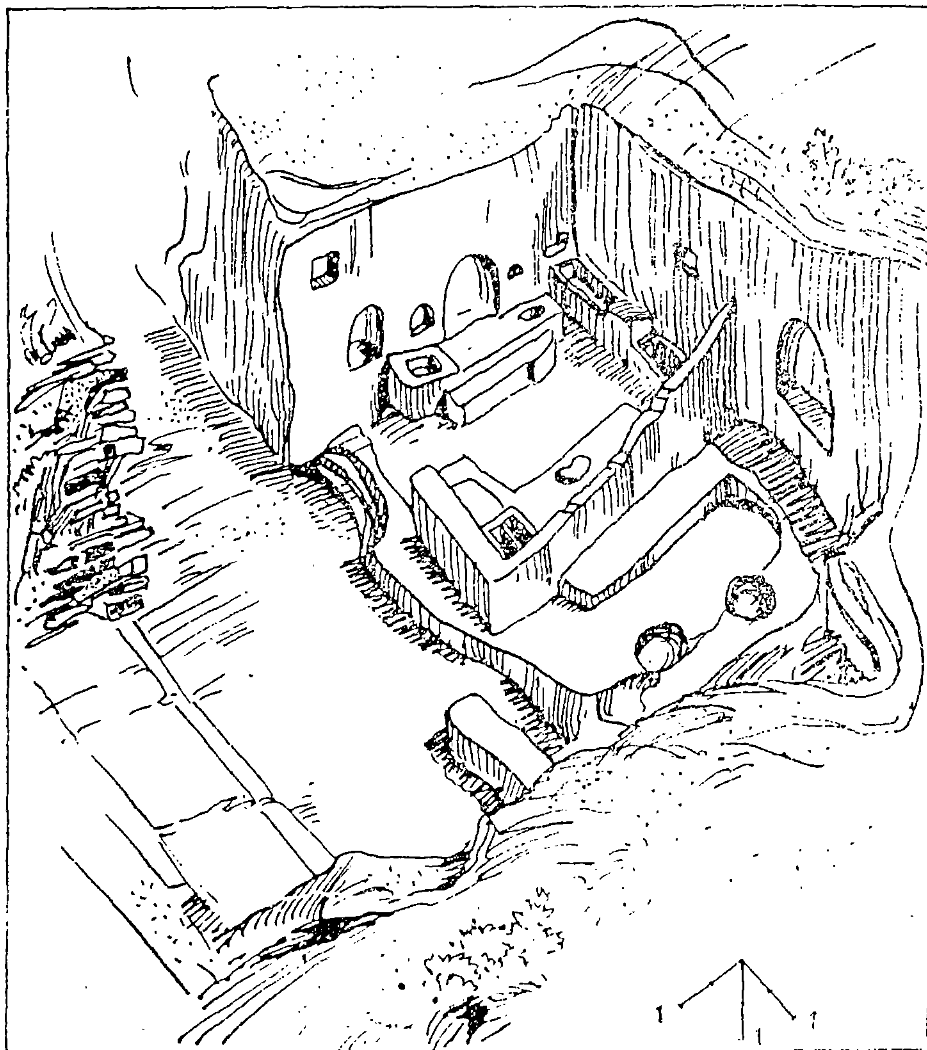


FIG. 1. Paikent. Apothecary's shop and chemical laboratory (late eighth century). (Drawing: Courtesy of A. Abdurazakov.)

The author makes a clear distinction between sodium carbonate (called *natrūn*) and potassium carbonate (*kelī*), writes about arsenic and copper oxides, silicic acid and antimony, describes the poisonous effect of copper and various compounds of lead, and refers for the first time to the use of distilled water for pharmaceutical purposes. Such early treatises as these not only contain descriptions of the substances most frequently employed by apothecaries (resin, balsams, essential oils and colourants), but also go into some detail on the subject of quality-testing. Thus one scholar gives a recipe for testing indigo, while

the Syrian ʿAbd al-Rahīm al-Jawbarī (*fl.* first half of thirteenth century) describes different ways of faking apothecaries' wares.

IBN SĪNĀ

Ibn Sīnā (*c.* 980–1037), a native of Bukhara, was a polymath, but had medicine as one of his principal fields of interest. He was the author of more than 400 works, more than 30 of which cover medical subjects. Among the latter, the most important is the *al-Qānūn fi 'l-tibb* [The Canon of Medicine], an encyclopedic study pored over by generations of Western as well as Eastern medical students for almost 600 years. It provides an account of ancient Greek and Eastern medicine and bears witness to the wealth of personal experience accumulated by the author himself. It comprises 5 separate books, each of which is devoted to a specific aspect of medical knowledge: the first, to generalities; the second, to simple medicines; the third, to disease in specific organs and systems; the fourth, to fevers, tumours, the treatment of wounds and toxicology; and the fifth, to pharmacology.

The second and fifth books of the *Canon* are of particular relevance to the present chapter. The former contains detailed descriptions of 811 simple vegetable, mineral and animal substances. An introductory section dealing with the properties and actions of simple medicines, including their *mizāj*, is followed by instructions for the collection and conservation of medical plants. For Ibn Sīnā, the theoretical basis of ancient Eastern medicine lay in the doctrine of *mizāj*, i.e. the mixed nature of different substances, including medicines, which reflected the properties of 'heat', 'coldness', 'dryness' and 'wetness'. According to their action, medicines were variously described as being of general or specific application. General medicines exercised heating, cooling, drying and moisturizing effects; specific medicines were used to treat specific diseases. There follows a list of 40 different properties that could be ascribed to medicines according to their action: absorbent, irritant, adhesive, dissolvent and so on. This part also contains detailed accounts of cosmetic substances and of some substitute medicines. Ibn Sīnā also drew up an inventory of more than 750 mineral substances (metals, their oxides and salts, acids and alkalis), as well as a list of various substances of vegetable and animal origin.

The *Canon* may also be described as a medical handbook. Of the 396 plants it mentions, 165 species are still used in medicine today.[12] Its fifth book contains what was for its time an exhaustive account of pharmacognosy (the branch of pharmacology concerned with the study of crude drugs of plant and animal origin) and provides detailed information concerning the prepara-

12. Kadyrov, 1994, p.72.

tion and utilization of compound medicines, necessary to reinforce the action of the basic remedy or to add properties which the latter does not possess. Sometimes a simple remedy has harmful side-effects which can be countered by the administration of a compound medicine. The main chapter of the book describes different medicines, their preparation and conservation, and another the processes of medication.

Ibn Sīnā's work played an important role in the development of European as well as Eastern medicine. It was translated into Latin as early as the twelfth century and found a place on the shelves of libraries in all the European universities. By the fifteenth century, it had been translated into Latin alone no fewer than 20 times. Much of what is set out in it remains relevant today, notably the author's ideas concerning the role of microbes in the spread of disease; the health implications of external, geographic and climatic factors; the psychosomatic aspects of illness; and the beneficial impact on health of personal hygiene, physical culture and sport, to name just a few.[13]

In his mainly philosophical work, the *Kitāb al-Shifā'* [Book of Healing], Ibn Sīnā set out the basic principles of Aristotle's teaching on the terrestrial origin of metals and minerals. A partisan of the sulphur-mercury theory of the creation of metals, he differed from Jābir b. Hayyān and al-Rāzī in firmly opposing one of the principal tenets of alchemy, namely the theory of the transmutation of base metals into gold and silver. He considered that it lay outside the power of alchemists to effect the genuine transformation of substances; they could produce spectacular imitations, for example by decorating alloys with a sheen of gold or silver, but they did not possess the means of transforming one metal into another.

AL-BĪRŪNĪ

Another great scholar who made major contributions to many branches of the sciences in the East was the Khwarazmian al-Bīrūnī (973–1048). In Khwarazm, he took a leading part in the circle of the Khwarazm Shah Ma'mūn b. Ma'mūn al-Gurgānj, which attracted many of the best-known scholars of the time. Medicine was the subject of his *Kitāb al-Saydana fī 'l-tibb* [Book of Pharmacognosy in Medicine], believed to have been written in collaboration with the physician Abū Hamīd al-Nakhshabī. At the beginning of the preface, al-Bīrūnī provides a definition of the terms *saydāna* (pharmacognosy) and *saydāninī* (pharmacognosist, druggist) and describes the purposes and the place occupied by this science in the medical field.

The first part of the introduction examines the origins of various terms in different languages. The distinction between simple and compound substances

13. Kadyrov, 1994, p. 75.

is made and the interaction of the human organism with various forms of nourishment, medicines and poisons is discussed. Al-Bīrūnī also discourses on the Arabic and Persian languages, expressing the view that the former is best used for scientific purposes, and the latter, 'for the tales of Khusraw and bedtime stories'.

The main body of the text is subdivided into 29 sections, each corresponding to a character in the Arabic alphabet. They contain paragraphs devoted to the characteristics of the 1,116 medicinal substances known at the time when the *Kitāb al-Saydana* was compiled, these being distinguished by al-Bīrūnī as being of vegetable, animal or mineral origin. Out of the total of 1,116 entries, 880 relate to medicinal plants, mention being made of some 750 different species. Medicinal substances of mineral origin account for 117 entries, and substances of animal origin for 101; there are some 30 compound remedies (including antidotes and various dietetic substances). For purposes of comparison, we may note that Dioscorides' work *De materia medica* contains 570 entries devoted to plants (mention being made of 400 species); 100 to animal derivatives; and 80 to substances of mineral origin.

The second book of Ibn Sīnā's *Canon* contains 811 paragraphs, 590 of which are devoted to vegetable substances (with mention of 400 species of plant), 125 to animal and 85 to mineral substances. Thus al-Bīrūnī provides accounts of a larger number of medicinal substances, especially those of vegetable and inorganic origin, than these earlier works. His sources are wide, dating from the earliest times to his own period and including ancient Indian, Greek, Alexandrian, Byzantine, Hebrew and Arab authors. The *Saydana* mentions 56 well-known authorities and 34 authors who have not been identified, as well as 14 unascribed texts.

In contrast with other works on the same subject, the *Saydana* does not refer to the properties and effects of the substances described or their medical applications. Instead, the author takes special pains to establish the composition of the substances described, the sources from which they are obtained (vegetable or animal), the signs which indicate their purity and high quality, and so on.

In the medieval East, pharmacognosy was considered either as a first stage in the acquisition of the physician's art or as an independent science in the service of medicine. Al-Bīrūnī offers a more specific definition, remarking that *saydana* is the knowledge of medicinal substances according to their origin, aspect and most proper forms; and of the composition of compound remedies in accordance with written recipes or with the prescriptions of a trustworthy and precise investigator. It follows that the pharmacognosist's task is to collect medicinal plants, to select the best species and to prepare compound remedies according to different recipes. In al-Bīrūnī's opinion, research and development are matters best left to the physicians, whose task it is 'to strive to perfect this art, lifting it up on the wings of theory and practice, and transmitting it to

reliable pharmacognosists, helping them in the way that they are helped by the naturalists'.[14]

Much can be learned about the history of chemistry and chemical production in Central Asia during the Middle Ages from al-Bīrūnī's accounts of chemical substances and ways and means of obtaining them. Particularly valuable in this connection is his *Kitāb al-Jamāhir fī maʿrifat al-jawāhir* [Comprehensive Book on the Knowledge of Precious Minerals], which is packed with information about medieval mineralogy, as well as the author's own experimental observations. Considerable space is accorded to methods of assaying and obtaining the minerals described. Al-Bīrūnī was the first scholar to concern himself with the physical and chemical properties of minerals and synthetic materials (their degree of hardness, their response to tempering and their specific weight); he established a classification of minerals and advanced a number of ideas concerning their origin (see further on mineralogy in Chapter 8 above).

Many other scholars are known to have frequented the court circle of the Khwarazm Shah Ma'mūn b. Ma'mūn al-Gurgānj, even if all we know are their names, such as Abū Sahl Masihi and Abu 'l-Khayr Khammār.

Medicine, biology, chemistry and technology in the later medieval period

Ahmad b. ʿUmar b. ʿAlī, known as Nizāmī ʿArūdī Samarqandī (d. 1157), a native of Samarkand, was a well-known scholar, poet and philosopher, who also concerned himself with science, and with medicine in particular. His *Majmūʿ al-nawādir* [Collection of Strange and Curious Things] contains not only 30 separate discourses on the lives and activities of notable savants but also some interesting remarks on the structure and function of living organisms, both vegetable and animal. The author stresses that the living world emerged from inert matter as the consequence of a multiplicity of transformations. As well as comprehensive and informative accounts of medicine and other sciences, this work contains information of another type, which makes it possible to assess the scale of mineral exploitation at the time. In one anecdote, the author describes how the ruler presented him with the profits from the lead mines at Warsad, a mountainous region adjacent to the Hari Rud valley and to the east of Herat in Afghanistan. 'Summer was at its height,' he writes, 'a time of great labour: in the course of 70 days, 12,000 *manns* of lead were smelted, of which one-fifth came to me.' It thus seems that output from this one twelfth-century

14. Al-Bīrūnī, 1973.



FIG. 2. Miniature flasks. Tashkent Museum.
(Photo: Courtesy of A. Abdurazakov.)

mine amounted to 36 tons of lead in 70 days, indicative of the productivity of the mining industry in Central Asia at the time.

At this period, scientific development was accompanied by significant progress in different branches of chemical-based craft industries. Thus, the traditional trades of metallurgy and metal-working, together with the production of ceramics and construction materials, mineral pigments and paints, glassware and leather goods, all flourished. Chemistry and pharmaceutics benefited considerably from the availability of vessels and apparatus made of glass, specimens of which have been discovered in the course of archaeological excavations throughout Central Asia. For example, alembics dating from the eighth century have been found in the ancient township of Afrasiab at Old Termez



FIG. 3. Glass spoons. Tashkent Museum. (Photo: Courtesy of A. Abdurazakov.)

and at Khasiyat-tepe. Miniature flasks in different shapes and colours, used in perfumery, have been found almost everywhere (Fig. 2). Glass spoons or ladles have been unearthed at Kasan and Afrasiab (Fig. 3). Pieces of chemical apparatus resembling modern flasks and retorts have been found at Afrasiab, Akhsikath, Gumushkand, Old Termez, Hauz-Khan-kala, Gormali-tepe, Kal'-tepe, Bazar-dare, Tashkent and Kanak (Fig. 4). One particularly interesting item



FIG. 4. Flask used for chemicals. Tashkent Museum.
(Photo: Courtesy of A. Abdurazakov.)



FIG. 5. Chemical jar-like vessel.
Tashkent Museum.
(Photo: Courtesy of A. Abdurazakov.)



FIG. 6. Glass alembics. Tashkent Museum.
(Photo: Courtesy of A. Abdurazakov.)

is a jar-like vessel in two parts which are separated by a thin piece of perforated glass (Fig. 5). Glass alembics dating from the ninth to the thirteenth century have been discovered in particularly large numbers at sites throughout Central Asia (Fig. 6), as have glass test-tubes (New Nasa, Merv, Kal'-tepe, Uzgend and Taraz), and weights of different sizes at Afrasiab.[15]

The disruptions of the Mongol invasions caused some dislocation, but the early 1360s saw the creation of the powerful Timurid state. Timur set great store by the applied sciences, i.e. astronomy, mathematics, medicine and history. The Dār al-Shifā' (House of Healing) in Samarkand at this time attracted distinguished physicians such as Mīr Sayyid Sharif, who came from Jurjan at Timur's invitation, and Mansūr b. Muhammad b. Ahmad, who wrote three medical works, one of which describes the properties of various simple and compound remedies.[16]

Timur's grandson Ulugh Beg (1394–1449) was especially attracted to the exact sciences, i.e. astronomy and mathematics (see Chapters 6 and 7 above). He also took great interest in medicine and studied the works of various physicians, including Ibn Sīnā's *Canon* and Muhyī al-Dīn al-Juwaynī's *Nigāristān* [The Picture Gallery], which contains a section on medicine. Himself the author of a short treatise on medicine, Ulugh Beg protected scholars, ensuring that they enjoyed a good standard of living, and presided over the construction of hospitals and his famous observatory, so that during his reign, Samarkand became the meeting-place of a veritable pleiad of learned men. The later Timurid

15. Abdurazakov, 1993, pp. 339–407.
16. Kadyrov, 1994, p. 99.

ruler Sultān Husayn Bayqara (d. 1506) and his vizier Mīr ʿAlīshīr Nawāʾī (d. 1501) also extended generous patronage to scholars, poets, philosophers and physicians. Among them was Hākim ʿAbd al-Razzāq Kirmānī (*fl.* late fifteenth–early sixteenth century), a versifier as well as the author of a work on medicine which contains accounts of different medicinal substances of vegetable and mineral origin, and of useful animals and birds, together with an appendix listing the names of medicines in the Arabic, Persian and Chaghatay Turkish languages. Mīr ʿAlīshīr Nawāʾī himself frequently returns to medical themes in his own writings.[17]

The development of chemistry and production technologies in the post-Mongol period can only be assessed on the basis of a few archaeological excavations, written sources on the subject being virtually non-existent. Glassware dating from this period has been found at 30 sites; the transformation of Samarkand into the capital of a great empire was accompanied by the expansion of glass production on a significant scale, and notably of window glass, as well as of glazed tiles and majolica ware. The Registan square in Samarkand was entirely occupied by craftsmen's workshops, and excavations here have brought to light the kilns and furnaces used by metal-workers, pharmacists, jewellers and ceramists, as well as crucibles, containing opaque coloured substances, which probably belonged to glass blowers or potters and were used to heat fritt, basic materials that served in the preparation of glazes and glass. Window glass is reported to have been found in the ruins of the ʿIshrat-Khana mausoleum and the Gur Amir complex in Samarkand, in monuments associated with Ulugh Beg in Bukhara, at Anau in Turkmenistan and in the ancient settlement of Shahr-i Sabz.

Obviously, technical advances in paper-making and the preparation of coloured inks and dyes for illustrations and miniatures facilitated the development of artistic and literary activity during the age of Timur. There is also some evidence that Timur was the first to use firearms and artillery on a large scale during siege warfare, suggesting that gunpowder or other 'fiery' substances were produced in the Timurid state and that practical chemistry had reached a fairly high level of sophistication.

Accordingly, it may be concluded that in Central Asia, during our period, there were considerable advances in the understanding and use of natural and synthetic materials, which were widely used in different fields of activity.

17. Abdurazakov, 1993, p. 26.

Part Two

TIBETAN AND MONGOLIAN PHARMACOLOGY

(Ts. Haidav)

Originating on Indian soil, Ayurvedic medicine was taken a stage further outside the subcontinent. In the rich repository of Indian-Tibetan traditional medicine, we have records of hundreds of medicinal raw materials comprising plant, animal and mineral products for the treatment of various ailments.

Between the eighth and the tenth century, Tibetan medicine reached a new stage of development, one greatly influenced by the traditional medicine of neighbouring countries. Tibet had relations with the medical systems of Afghanistan, Central Asia, Iran and the Arab countries, as well as Mongolia, which also contributed to the development of Tibetan medicine. A well-known book of Indian medicine, *The Secret Oral Tradition of the Eight Branches of the Science of Healing*, was introduced into Tibet under the title, the *rGyud-bzhi* [The Four Treatises].

In the seventh century, an imperial state was established in Tibet under Soronzongombo (619–49) and it was during this period that Indian Buddhism flourished, together with medicine and the arts, including astrology, in Tibet.[18] This trend was accentuated by the elder Yutok Yondongombo (708–839). During the reign of Tesrondevzon in the ninth century, a well-known Buddhist scholar, Badamsambo of Kashmir, was invited to the court of the emperor, where he enthusiastically translated Buddhist doctrines into Tibetan. Other physicians from neighbouring countries were also invited to bring their medical skills: Sumagerde from Nepal, Lhagvajantsan from Mongolia, Dambalodoi from Kashmir, the Indian physician Sri Ananda, the Persian physician Ayurvaya and physicians from China are said to have participated in this task.[19] After this influx of physicians from various countries, the younger Yutok Yondongombo (1138–1213) rewrote and edited the *rGyud-bzhi*; it was thus enriched by the medical culture of neighbouring countries,[20] and without revision, has been in use up to the present time.

Besides material concerning the theoretical basis of the five elements (space, air, fire, water and earth), the *rGyud-bzhi* also demonstrates Chinese medical concepts as regards the 5 internal solid organs (the heart, lungs, liver, spleen and kidney) and the 6 hollow organs (stomach, small intestine, large intestine, gall bladder, seminal vesicle and bladder). The treatise consists of 4 volumes and 156 chapters. It covers a large number of disorders, which can,

18. Dashieva, 1991, pp. 2–4.
19. Berezov, 1982, pp. 270–1.
20. *Dictionary of Chinese Traditional Medicine*, 1986, Vol. 2, pp. 30–1.

however, be condensed into 404, clearly subdivisible into 4 groups: 101 that can be cured by medicine, 101 treated by spiritual *mantra*, 101 treated by medicine blended with spiritual *mantra*, while 101 disorders are considered as incurable. In the fourth volume of the *rGyud-bzhi*, we have details of medicinal raw materials. The *Merged Gara-yin Oron* [Dictionary of Medicine] gives an account of medicinal products mentioned in the *rGyud-bzhi*. Compiled by many Tibetan and Mongol scholars, it was edited by Bolbidorj (1717–62).

The pharmacological science of Tibet and Mongolia leads us to study the effectiveness of drugs and their relationship to organisms, animals and human beings. Oriental pharmacology was based upon the interrelationship of five elements (the five external substances). It was believed that the universe originated from the space element, and was then re-formed into air, thereby producing space and the universe. During this period, the young sun shone brightly over space and the universe, melting ice, which then formed the ocean and thereafter created the earth. This is why the universe was considered the structure of the five elements: space, air, fire, water and earth.

Man, being a product of nature, is also composed of five elements, and to determine the physiological function of a human body, the five elements were generally classified accordingly: air for the space element, whereas the sun was connected with the fire element; the two elements, water and earth, were attached to the three elements, and from here originated the concept of the three elements (essences) – *hii* (air or wind), *shar* (bile or fire) and *badkan* (phlegm). The fire element, from its yellow colour, was bestowed as *shar*; water and earth, because of their moistening, heavy properties, were regarded as *badkan*. In Sanskrit, the term *badkan* denotes water and earth.[21]

In the encyclopedia of Chinese medicine, the three elements are described as follows.

- The *hii* (air or wind) element has light, rough, cool, thin, strong, mobile characteristics, the light property being the opposite of heavy. A person with a light, quick, hasty, highly excitable temperament possesses light characteristics. The rough quality has contradictory types, being both oily and mild. A person having a rough, harsh skin and harsh characteristics represents the specific quality of roughness. The rough property subsides under the oily and mild qualities. The mobile element is the opposite of the solid property. *Hii* is responsible for the entire movement of the body. Instability, awakeness and forgetfulness are the specific constituents of the mobile element. It takes shape in mobile qualities and subsides under the influence of the warm property.[22]

  The term *hii* is an abstract notion and should not be understood by

21. *Dictionary of Chinese Traditional Medicine*, 1986, Vol. 2, pp. 30–1.
22. Ibid.

the simple meaning of hydrogen air or azot, the chemical characteristics in atomic physics of hydrogen, or any substance with the form of wind. References to *hii* in the sources define it as the force which keeps everything in motion; it is responsible for the entire movement of the body, conducts the physiological functions and runs through the white channels (nerves). The space element, in fact, gives an opportunity for it to manifest itself and provides space for *hii* in movement.

The prominent Tibetan physician Darma Lubsanchoidog (sixteenth century) wrote a book called *The Golden Set*. In the chapter entitled 'Physical Conditions', he describes *hii* as follows. After the formation of the embryo in the mother's womb, a *hii* with its specific name emanates from the embryo. It changes form as it grows and becomes larger. Then, four weeks after the formation of the embryo, a circle named *hii* appears and the embryo changes into the form of a fish.[23] Every week, a certain named *hii* is created from the embryo, thus producing the system of organs. In the 38th week, the 'birth condition' *hii* is produced and the child is then ready to be delivered with his head facing downwards. From this point of view, the *hii*, according to the theory of oriental medicine, is the energy source which is responsible for bodily movement and growth. A human being has two large veins, one white and one black. The white is said to be the spinal cord, and the black is considered the aorta. The concept of *hii* running through the white channel is understood to be the nervous electric potential.

The *hii* element has six characteristics and these act upon the opposing relationships according to the theory of 'wisdom and methodology'. For example, the light property of *hii* is the opposite of heavy, cool is the opposite of warm, and so on. Every phenomenon has a contradictory side, and this expression is relevant to the symptoms of disease. The mechanism of the action of drugs is also explained accordingly. To treat *hii*, a herb is given as an example: *li-shi* (*Eugenia carophyllota*, or Thumb) is considered to be the most important remedy for *hii* deseases. Grown in South-East Asia, this aromatic herb contains 1.7–2 per cent of essential oil, of which 70–85 per cent is evgenol.[24] The herb was utilized in medicine from very ancient times in India, Egypt and China. *Li-shi* has warm, heavy, oily, solid, soft and dry properties.

The medical texts give descriptions of how *hii* disorder is to be treated. Lightness of *hii* is treated by the heavy property of *li-shi*, roughness of *hii* by oily substance, firmness of *hii* by the soft property of *li-shi*, thinness of *hii* by the dry property and, finally, coolness of *hii* by the

23. Luvsanchoidog, 1984, pp. 43–5.
24. Muraeva and Gammarman, 1974, pp. 41–3.

warm property of *li-shi*. This theory of pharmacology expresses the principle of treating the characteristics of disease by their opposites. Tibeto-Mongol pharmacological theory involves multi-ingredient drugs, attaching importance to the taste and to the properties of the drugs that are intended to alleviate diseases and which produce no side-effects in the organism.

The *shar* (fire or bile) element has hot and sharp properties. It has seven characteristic varieties. According to wisdom and methodological concept, *shar* belongs to the wisdom characteristic, and according to the five elements' idea, *shar* is the fire element. It is responsible for intelligence, memory and enthusiasm. In the medical texts, *shar* is described as creating warmth and preserving equilibrium with the *badkan*.

The essential qualities of *shar* are hot, sharp, light, wet and oily. The *shar* element resists cold and is responsible for thirst and appetite. The sharp quality is the opposite of lightness and oiliness and is usually warm. The oily substance always subsides under the cool characteristics, and the light property develops more in the fire element. Man knew of the energy of sunlight, but failed to understand the nature of internal warmth. This brought out the abstract notion that fire is the factor that preserves warmth in the organism. Yellow-coloured bile (*shar*) was equated with the sun for its sharp quality.

The concept of the fire element or the *shar* element is ancient, indicating that the scholars of the time were acquainted with the notion of 'free energy'. The living organism is a free, open system, which receives potential energy from organic substances to a certain extent, and as a result, certain actions are performed. These energies are called free energy; and the first energy source of living organisms is sunlight. Green plants photosynthesize with the help of sunlight and produce organic substances such as amino acids, and oily substances, the process of producing organic substances from non-organic ones. Other living organisms directly receive the organic substance, and through an assimilation process, acquire the energy sources. [25]

In medical literature, *shar* is linked with intelligence and courage, in other words, it is responsible for intellectual functions in the body, producing body heat or energy. Its qualities are hot, sharp and oily. The *shar* disease also reflects these characteristics. Therefore, one chooses medicinal drugs to decrease this heat. The medicinal herb *Mormodica cochinchinensis* (Lour) is most often used in traditional medicine to treat this. It is a perennial herb of the family of Cucurbitaceae and grows in cool climatic conditions. The seed is used in medicine; its fruit and seeds

25. Berezov, 1982, pp. 270–1.

contain oily substances. The oil contains 44.4 per cent of oleini acid, 14.7 per cent of linolenin acid and 33.8 per cent of palmitinin acid, and also yields a strong compound of sanotoxin which is said to kill fish.[26] *Mormodica cochinchinensis* is bitter in taste and possesses cool, cold and astringent, light, rough properties. This is why the hot quality of *shar* is alleviated by the cool, and the roughness is treated by the astringent. According to modern pharmacology, *Mormordica cochinchinensis* in general controls the metabolic state and inhibits adrenalin activity.

The *badkan* (phlegm) element is the third constituent of organisms. This element comprises water and earth elements. It has seven characteristics: heavy, cold, oily, smooth, compact, sticky and firm. The heavy characteristic of *badkan* is responsible for stability and sound sleep; calmness is also due to the heavy quality of *badkan*, which is connected with the earth element. The cold characteristic of *badkan* is directly opposed to the hot property and is therefore considered as the water element.

In the theory of wisdom and its methodology, hot is described as the sun and cool as the moon, indicating the two sides of one particular object. There are also other theories stating that if wisdom and methodology exist in a normal state, then the whole state is said to be in equilibrium. According to this theory, in the equilibrium state of *shar* and *badkan*, the *hii* element exists inversely as a buffer between these two elements.

If any of these elements becomes excited or spoiled, it produces disease and is also responsible for the degeneration of the body. *Hii* has six characteristics, whereas *shar* and *badkan* each have seven. In some classical books, it is said that the first two characteristics of the three elements originate directly from the mother's womb. The last four characteristics of *hii* and the five characteristics of *shar* and *badkan* are considered to be generated later. According to modern physiological science, these reflect the concept of conditional reflexes.

The theoretical basis of Tibeto-Mongol pharmacology follows the concept of the three essences or humours. It tries to understand the characteristic role of the three humours, and the causative factors of their imbalance, and is concerned with proper diagnosis. The manifestation of these disorders is determined by the following inspection methods: questioning the patient, taking the pulse, and observation of the urine that includes colour, odour and foaminess. The methods of the ancient physicians are still of great interest today. The ancient physicians freely used toxic substances such as aconitine and strychnine in medicine.

In the traditional medical schools of India, China, Tibet and Mongolia, there was a tradition of teaching students the methods of identifying medicinal products by taste, a method practised even today. Thus Luvsan's *Dictionary of*

26. Turova and Sapojnikov, 1987, pp. 340–3.

Mongol Medicine has a brief description of taste by the tongue. The quality and quantity of a drug are commonly determined by five basic tastes. Physicians were also taught how to determine the dose of each ingredient that is mixed in a medicine. The five basic tastes are sweet, bitter, saline, astringent and sour. The taste of any product is related to the theory of the five elements. The earth, water, fire and air are combined in several different ways and taste is defined accordingly. The space element does not form the main component in taste. If more than two tastes are combined, then it is called a complex taste. Thus the combination of sweet and sour, and the combination of sweet, sour and saline, are complex tastes. For example, *Ribes rubrum* is said to possess five different tastes, and six different tastes have been determined in *Terminalia chebula*. In ancient medical sources, great emphasis was attached to taste. The ancient physicians considered taste to be an important source for determining treatment, because they held that taste is an indicator of potency with respect to counteracting disorders. Thus the sweet taste decreases *shar* and thereby produces *badkan*. Medicine of a sour taste suppresses *badkan* and *hii*, but activates *shar*. The pharmacological system of Tibet and Mongolia thus defines the mechanism of a drug by its taste.

Substances and food with a sweet taste have the potential to improve bodily strength, regulate the blood, promote weight, nourish the bone marrow, increase regenerative fluid and breast milk, and provide a good complexion. The saline taste prevents constipation, releases spasms in tendons, widens blood vessels and thereby improves blood circulation. The bitter taste decreases body temperature and reduces poisonous substances accumulated in the organism. From the principles of the various tastes, the efficacious, qualitative and potential values of drugs are determined.

Thus the traditional pharmacology of Tibet and Mongolia corresponds to the theory of the 5 elements based on oriental medical philosophy and the theory of wisdom and methodology. Supported by these theories, drugs were prepared on a basis of the disturbances of the 20 characteristics related to *hii*, *shar* and *badkan*. Physicians were required to acquire knowledge and experience of identifying at least 73 tastes in a medicine. The medical texts give examples of 2 types of taste in 15 plants and 3 types of taste in 20 kinds of medicinal plants. Medical texts teach that a physician who can detect the taste of dried medicinal herbs should be accepted as a pharmacologist. There are 15 plants or animal products possessing 4 tastes, 6 ingredients having 5 tastes and a few medicinal products comprising 6 tastes; if a physician can distinguish all these tastes, he is regarded as qualified.

In this way, traditional medicine speaks of the potencies of ingredients in terms of their tastes, and describes how medications with different tastes and potencies work in the treatment of diseases and conditions.

10

Physics and mechanics
Civil and hydraulic engineering
Industrial processes and manufacturing,
and craft activities

D. R. Hill

Physics and mechanics

The most widespread Muslim school of thought dealing with the principles of natural philosophy, which we can loosely define as sciences, was in medieval times the Peripatic or Aristotelian school (see above, pp. 167–70). Our modern categorization into distinct sciences was not used and would have had no meaning in the medieval world. Physics and metaphysics were inextricably linked. Moreover, certain branches of physics, such as optics, were classified by the Muslims as among the mathematical sciences. And although the great bulk of Aristotle's works were known and widely disseminated in the Islamic world by the tenth century, it should not be supposed that a corpus of works derived directly from Aristotle provided the sole pattern of thought even for those Muslim scholars who followed the Peripatetic tradition.

Aristotle's system of ethics, metaphysics and physics is a closed system. It is undoubtedly the most impressive theoretical construction of thought to have emanated from the Hellenistic world, persisting into the Middle Ages. And it was a construction based almost entirely upon speculation; experiment played no part in the formulation, let alone the testing, of Aristotelian ideas. These two factors – comprehensiveness and reliance upon theory – rendered the whole fabric very difficult to dismantle and Aristotelianism was to exercise a stultifying influence on science throughout the Islamic and Christian Middle Ages. Even now, detaching those of Aristotle's ideas which are to our eyes the subject-matter of physics does violence to the integrity of the system as a whole. If we can feel this way, knowing that many of his ideas have been disproved, how much more difficult it must have been for medieval men to tamper with a system that had been sanctified by centuries of scholastic acceptance. It was made even more difficult because experimental methods were regarded as inferior to speculation and, in any case, the equipment available for experimenting was frequently too inaccurate to produce valid results.

Nevertheless, we must attempt to isolate some of the more significant ideas of Aristotle on physics.

Among Aristotle's main tenets were his doctrine of hylomorphism, the definition of space as the inner surface of the body, which is tangential to the outer surface of the body in question. He considered all matter to be composed of four elements: earth, fire, air and water. These are distinguished from one another by their 'qualities' – the dry, the hot, the cold and the fluid. He denied the possibility of a vacuum. His opinions on optics are ambivalent and rudimentary: in some of his writings he seems to accept the *intromission* theory – 'something' enters the eye that is representative of the object. His account of the facts surrounding vision were too ill-formed to provide the detailed explanations required for complex optical phenomena. Consequently, he had to resort to the *emission* theory in attempts to explain, for example, the halo and the rainbow. (In the emission theory, rays emanate from the eyes and form images of the objects they impinge upon.) (See further, on intromission and emission below, p. 260.)

Aristotle's theories of dynamics are similarly flawed. He held that the flight of a projectile would be impossible in a vacuum and that a medium is necessary for motion. He believed that the speed of falling bodies was in inverse proportion to their weights. He did not express any clear views on acceleration.

As well as the bulk of Aristotle's own works, the writings of many of his commentators became known in the Islamic world through translations into Arabic. Atomistic conceptions of the world existed very early in Islam and this philosophical atomism was one of the ways in which some of the Muslim scholars differed from Aristotle. There were five possible theories, all centred on atoms: (a) atoms exist *in esse* and are determined and indivisible; (b) atoms exist *in esse* but are not determined; (c) atoms are determined but exist only *in posse*; (d) atoms are not determined and exist only *in posse*; and (e) the simple body is composed of little bodies which cannot be derived in fact but can in spirit, by hypothesis. This summary requires some revision but at least it demonstrates the essentially philosophical nature of the various theories, which had little application in practical physics at the time.

Many commentaries on Aristotle's works were written by Arabic scholars, notably by al-Fārābī (d. 950) and Ibn Sīnā (*c.* 980–1037). These scholars, and many others, were essentially Aristotelian in their philosophical and scientific views. They were by no means uncritical of Aristotle, however. In particular, they attempted to elucidate problems of projectile motion and gravity, the weakest points of Aristotelian physics. Following John Philoponus, Ibn Sīnā developed the concept of *mayl* (literally 'inclination', the Latin *inclinatio*) to explain projectile motion. This concept was an extension of Philoponus' *impetus* theory, which was to be of considerable importance in the Latin West. The Muslims also made extensive studies of gravity. They knew that the accel-

eration of a body falling under the force of gravity did not depend upon its mass and that the power of attraction between two bodies increased as the distance between them decreased and the mass increased.

Although the Muslim Peripatetics themselves criticized Aristotelian thought, a more radical approach was taken by other scientists. Al-Bīrūnī (973–1048) was probably the greatest scientist of medieval Islam. In the questions and answers which he exchanged with Ibn Sīnā on problems of natural philosophy, al-Bīrūnī questioned fundamental Aristotelian assumptions such as hylomorphism, the natural place of objects in the sublunary region, the denial of the vacuum and so on. Al-Bīrūnī's severely practical, experimental approach was, however, implicitly more dismissive of the Aristotelian system than any philosophical arguments. The same can be said of a number of other Muslim scientists, some of whose works are discussed below. They can be judged by their works rather than by their opinions.

There is obviously a clear distinction between those who applied the principles of hydraulics and mechanics to the construction of useful machines and ingenious devices, on the one hand, and the scientists who attempted mathematical analyses on the other. Those who committed their ideas to paper were greatly outnumbered by the countless craftsmen, most of them illiterate, who constructed utilitarian machines. The distinction between practical men and theorists is not absolute, however. The writers on machines had a good knowledge of applied geometry and arithmetic and they understood the principles of simple machines, including the correct use of gear ratios and some of the principles of hydrostatics. The best of the scientific writers verified some of their hypotheses experimentally. The distinction is a real one, however, and can best be expressed as follows: the practical engineers dealt empirically with both the static and the dynamic aspects of solid and fluid mechanics. The scientists speculated about dynamics, but were unable to elucidate its basic principles, partly because their ideas were stultified by the heavy hand of Aristotle and partly because of the lack of the mathematical and instrumentational means for testing their hypotheses.

In the field of statics the most fertile area of study was provided by the works of Archimedes, a large number of which were available in Arabic by the end of the ninth century. Another influential work was the *Mechanics* of Hero of Alexandria (*fl. c.* A.D. 60). In general the Muslims added little to the theoretical results recorded by Archimedes and Bero. Perhaps the most important Muslim work in this field is the *Mafātīh al-ᶜulūm* [Keys of the Sciences] by Abū ᶜAbd Allāh al-Khwārazmī (*fl.* second half of tenth century). His work, written at the close of the tenth century, is essentially an encyclopedia of the sciences. In the eighth treatise he gives a list of the five simple machines – lever, pulley, wedge, screw and press – with etymological information but without any mathematical analysis. In the second part of the same treatise he lists the components which were used by the makers of 'wonderful vessels': jars and

pitchers; bent-tube and concentric siphons; taps with multiple borings; conical valves; clack-valves; occluded orifices; etc. The operation of these mechanisms is described without any attempt to explain how they work. An important element of this part of al-Khwārazmī's work is that brief details of the manufacture of the components are given in most cases. In fact, however, al-Khwārazmī is simply recording a tradition that had persisted from Hellenistic times into Islam.

The earliest and one of the best books on this type of construction is the *Kitāb al-Hiyal* [Book of Ingenious Devices] by the Banū Mūsā b. Shākir. These three brothers were the sons of a certain Mūsā b. Shākir, who was a close companion of al-Ma'mūn when the latter was residing in Khurasan before he became caliph in 813. It is reasonable to assume that the brothers obtained their early knowledge of engineering while they were living in Khurasan. The purpose of the trick vessels described in the *Kitāb al-Hiyal* was probably partly to provide amusement for the members of courtly circles. A second purpose, however, was prompted by constructive curiosity. The brothers probably wished to see what varied effects could be produced by subtle changes in aerostatic and hydrostatic pressures and by the use of conical valves as 'in-line' components. Certainly, their application of this kind of miniature engineering and of the behaviour of air and water under different pressure conditions shows a mastery of empirical fluid mechanics that is far more impressive than any theories derived solely from speculation. The Banū Mūsā's work in this field was never surpassed by later Islamic engineers, whose work was often superior in the design and construction of larger machines. Indeed, there is nothing comparable to the *Kitāb al-Hiyal* until the introduction of pneumatic instrumentation in the twentieth century.

There were 100 devices in the book, of varying degrees of complexity. The one illustrated in Figure 1 (No. 43 in the book) is by no means the most complicated, but it illustrates the Banū Mūsā's methods and incorporates several of the components that they used most frequently. First, however, we should examine the operation of one of their most effective mechanisms, the double concentric siphon, shown at the top left-hand corner of Figure 1. It consists of a narrow tube that passes through a partition between a small upper chamber and a large lower chamber; usually the former is the neck, the latter the body of a pitcher or jar. The joint between partition and tube is airtight and watertight. The top and bottom of the tube are covered by wide tubes with closed ends – there are gaps between the ends of the tube and the ends of the caps. When inpouring of a liquid commences, it flows up the inside of the upper cap, down the tube, fills the lower cap and overflows into the vessel. When inpouring ceases it cannot be resumed unless the height H of the upper vessel is greater than heights $a + c$. The double concentric siphon, which is essentially a means for producing an artificial airlock, was not used by the Hellenistic engineers or by any other Islamic engineer.

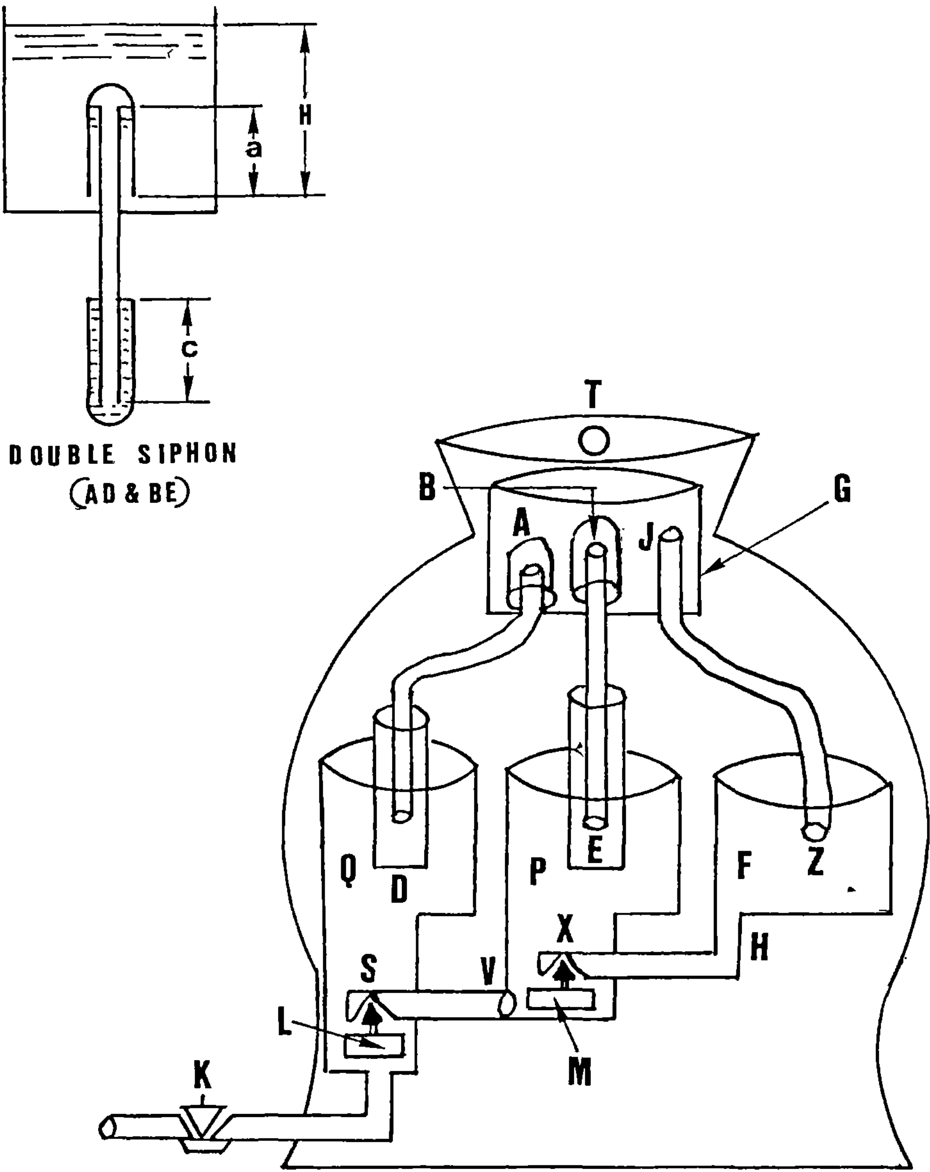


FIG. 1. Double concentric siphon.

The main image in Figure 1 is traced from the Topkapi Saray Museum manuscript no. A3474, with the Arabic letters replaced by Roman ones. Three liquids of different colours are used. The operation is as follows: the first liquid is poured in through hole (T) and fills tank (Q) through siphon (AD). As it rises, float (L) rises and closes conical valve (S). When the second liquid is poured in it cannot flow through siphon (AD) and therefore flows into tank (P) through siphon (BE). Float (M) closes conical valve (X). The third liquid can only flow through pipe (JZ) into tank (F). When tap (K) is opened, tank (Q) discharges, valve (S) opens and tank (P) discharges by route (XVSLK). Valve (X) opens and tank (F) discharges by route (HXVSLK).

The foregoing description gives an idea of the Banū Mūsā's methods but unfortunately space does not allow a description of the other ingenious mechanisms, both hydraulic and mechanical, that they used to obtain a great variety of effects in their trick vessels, fountains and lamps. There is, however, another aspect of their engineering skills. They were often engaged in civil engineering works such as the excavation of canals and developed several machines to assist them in these projects. One of these was the grab shown in Figure 2. Two copper half-cylinders were connected by hinges. They were lowered into the water by rope (qx) and when they touched the bottom, rope (bm) pulled them together. The device was then raised by rope (bm) and its contents examined on dry land. The device is essentially similar to a modern clamshell grab.

Later writers on fine technology included Abu 'l-ᶜIzz Ismāᶜil al-Jazarī (*fl.* later twelfth century), whose *Kitāb al-Hiyal* [Book of Ingenious Devices] is probably the most important engineering document to have survived from any cultural area before the Renaissance. It was completed in Diyar Bakr (modern Diyarbakir), in the south-east of what is now Turkey, in 1206 and contains the following six categories: clocks; trick vessels; water dispensers; fountains and musical automata; water-raising machines; miscellaneous. Its scope is therefore much wider than that of the Banū Mūsā's work, but al-Jazarī does not attempt to emulate them in their own special skills. Some of the technical expressions he uses are clearly of Persian origin. Further evidence for an Iranian element in Islamic fine technology is given by Ridwān Ibn al-Saᶜāti (Son of the Clock-maker) in his treatise written in Damascus in 1203, describing the repairs he made to a monumental water-clock built by his father, who was a native of Khurasan. Ridwān tells us that the type of water-clock invented by Archimedes was transmitted to Iran in Sasanian times. It was modified in Iran and the revised design was carried back to the West, where it was used in Byzantium and in Umayyad Damascus.

The branch of quantified mechanics to which the Muslims made the most important contribution was the science of weighing in its widest sense. The most comprehensive work on this subject in the Middle Ages, from any cultural area, was the *Kitāb Mīzān al-hikma* [Book of the Balance of Wisdom], completed in 1121 in Merv by Abu 'l-Fat'h al-Khāzinī (*fl.* early twelfth century)

SIDE ELEVATION

END ELEVATION

about 50 cm

PLAN (ropes omitted)

FIG. 2. Hydraulic machine for engineering work.

(see also above, Chapter 8, Part One). The value of the work is enhanced by the fact that al-Khāzinī gives a history of statics and hydrostatics, with commentaries on the works of his predecessors, including Archimedes, Euclid, Menelaus, Pappus, al-Bīrūnī and ʿUmar Khayyām. Although he acknowledges the work of these scholars, there is no doubt that he made significant contributions of his own.

The work is divided into eight treatises, as follows:

1. Theories of centres of gravity according to various Greek and Arabic scholars.
2. Further discussion on centres of gravity; mechanism of the steelyard.
3. Comparative densities of various metals and precious stones, according to al-Bīrūnī.
4. Balances designed by various Greek and Arabic scholars.
5. The water-balance of ʿUmar Khayyām – its design, testing and use.
6. 'The Balance of Wisdom'; determination of the constituants of alloys.
7. Weights of coinage.
8. The steelyard clepsydra.

The comprehensive nature of al-Khāzinī's work is clear from the foregoing list, as is his scrupulous acknowledgement of the work of his predecessors. The first *maqāla* (treatise) gives a number of theories, from Greek and Arabic writers, on the fundamental formulae for weighing. For the most part there is nothing new in this; al-Khāzinī repeats the vagueness of the Greeks in failing to differentiate clearly between force, mass and weight. What is remarkable, however, is his treatment of gravitation – excluding heavenly bodies – as a universal force. Like the Greeks, he considered this force as attracting all bodies towards the centre of the earth, and that this attraction depended upon the mass of the body. Al-Khāzinī was also aware of the weight of the air and of the decrease in its density the higher one goes.

Most of the remainder of the work is concerned with hydrostatics, in particular the determination of specific gravities by application of the Archimedean principle of flotation. The equipment required to obtain accurate results is described in some detail. The first description is concerned with the determination of the specific gravities of liquids, using the aerometer of Pappus. This instrument is a copper tube, closed at both ends and weighted at one end with lead so that it stands upright in a liquid. Scales are engraved on the outside. The principle of the instrument is simply that a body will float in a liquid to a depth proportional to the specific gravity of the liquid. The specific gravities could be read directly from the scales. Al-Khāzinī compiled a table of the specific gravities of liquids with remarkable accuracy.

To measure the specific gravities of solids, al-Khāzinī used an instrument devised by al-Bīrūnī. This was a special vessel filled with water up to the rim of a spout. When the specimen was lowered into the water, the amount which overflowed was weighed. If the specimen had been weighed in air to give a

value of W_1 and the displaced water weighed W_2, then the specific gravity of the substance was W_1/W_2. Al-Khāzinī records the specific gravities of 50 substances, which he tabulates, acknowledging that in most cases he is simply reproducing the results obtained by al-Bīrūnī. The accuracy of the results is impressive. The tabulation of specific gravities was not given serious attention in Europe until the seventeenth century.

The remainder of al-Khāzinī's book is devoted to the description of various balances designed by Greek and Islamic scientists, concluding with an exhaustive description of the balance which al-Khāzinī calls 'The Balance of Wisdom' or more explicitly 'The Comprehensive Balance'. This balance was first developed by a certain Muzaffar b. Ismāᶜīl, a native of Herat and an immediate predecessor of al-Khāzinī. The design, to which further refinements were introduced by al-Khāzinī, was a carefully constructed machine capable of the most accurate measurements, and represents the culmination of Muslim achievements in this branch of applied physics. We shall therefore give a description of its construction and applications in some detail.

Figure 3 is a reconstruction of the balance in its complete assembly. The beam (A) was made of iron or brass. Its cross-section was a square with sides of about 8 cm; its length was 2 m. Soldered to the beam in the centre was a stiffening piece (C) and at the same point the cross-piece (B) was fitted. The tongue (D), about 50 cm long, was provided with a tapered tang that passed through holes in the cross-piece and the beam, being secured below the latter by a knob. The tongue was surrounded by a single metal fitting as shown, consisting of two 'shears' connected at the top by the cross-piece (E), while at the bottom were two cross-pieces (F) parallel with cross-piece (B). Rings soldered to the top of (E) allowed it to be connected to a beam. In cross-pieces (F) there were narrow holes exactly in line with similar holes in (B). These were connected by threads; this arrangement avoided the friction of an axle which would have been considerable in a machine of this weight.

The various scales, as designated by al-Khāzinī, were as follows:

L: air-bowl for the end
N: second air-bowl for the end
H: third, or water-bowl
J: fourth, or winged bowl
K: movable running weight (*rummāna*)
P: fifth or movable bowl

Bowl (H), which was specified as having a conical shape, was suspended from the underside of bowl (L). Otherwise all the bowls (i.e. scales) and the *rummāna* were suspended from the beam by very delicate steel rings which fitted into notches on the upper surface of the beam. Bowl (L) and bowl (N) (hence also bowl H) were immovable longitudinally. The special shape of bowl (J) was to allow it to be brought close to the adjoining scales.

The beam was graduated from end to end. In addition, small silver discs

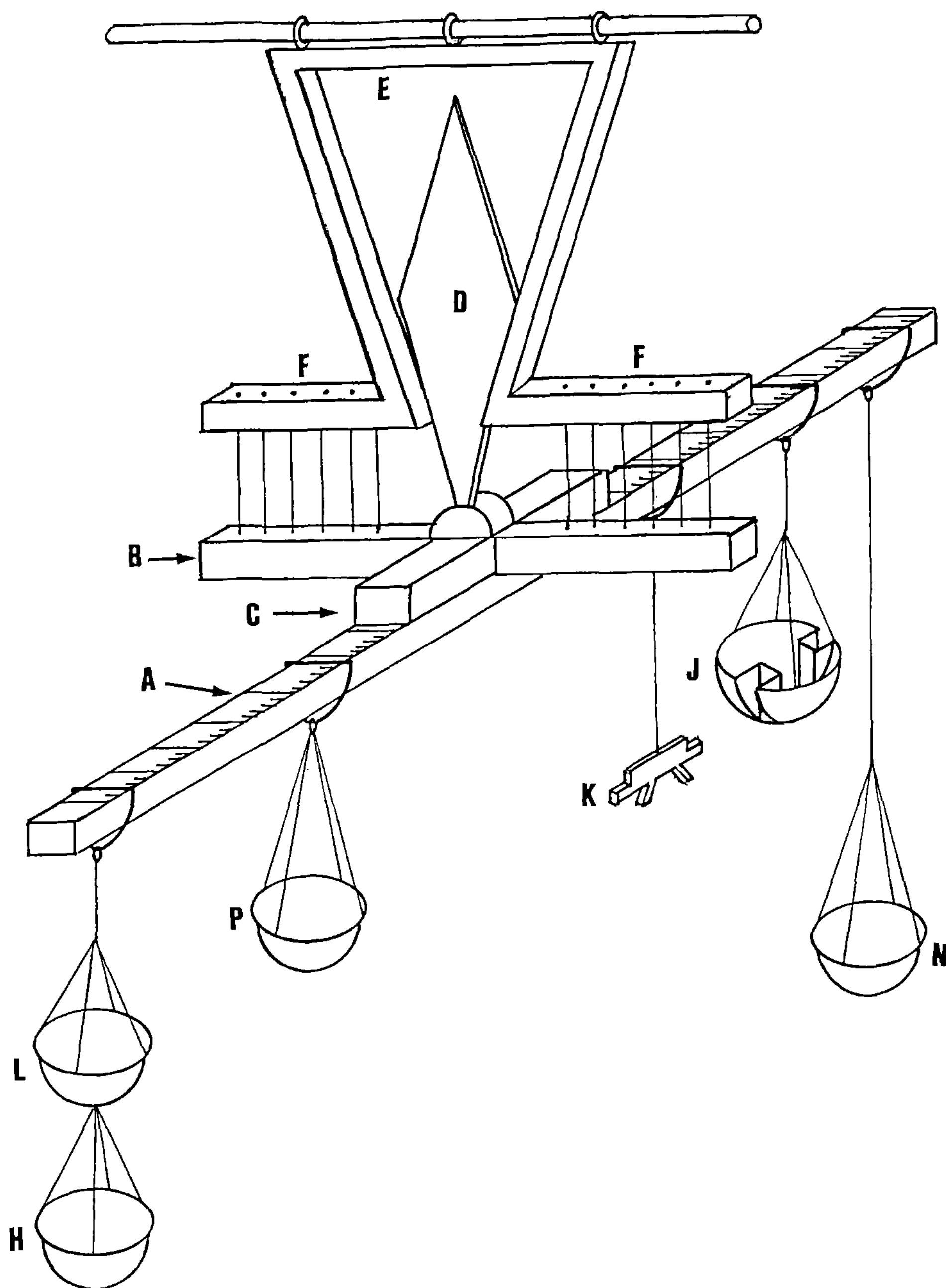


FIG. 3. Reconstruction of al-Khāzinī's balance.

were inserted into the beam at various points. The position of each of these discs represented the specific gravity of a given substance. Thus if a substance was weighed in the air, the disc would automatically indicate its weight in water. Al-Khāzinī attained an extraordinary degree of accuracy with this balance. This was the result of the length of the beam, the special method of suspension, the fact that the centre of gravity and the axis of oscillation were very close to each other, and the obviously very accurate construction of the whole. Al-Khāzinī tells us that he attained an accuracy of about 1:60,000.

Al-Khāzinī used his scales for the most varied purposes: first, for ordinary weighing, then for all purposes connected with the taking of specific gravities, examining the composition of alloys, changing of dirhams to dinars and countless other business transactions. In all these processes the scales were moved about until equilibrium was attained; the desired magnitudes could in many cases be read at once on the divisions of the beam.

Although al-Khāzinī describes many of these various procedures, he devotes particular attention to determining the proportions of two constituents in an alloy. The basic formula for resolving this problem is derived as follows:

Let a body M of weight W and specific weight S be composed of two metals A and B of specific weights S_1 and S_2. Let the weight of substance B in the alloy be x. Then:

$$\frac{W}{S} = \frac{W - x}{S_1} + \frac{x}{S_2}$$

whence

$$x = \frac{W(S - S_1)}{S_2 - S_1} \cdot \frac{S_2}{S}$$

Several different procedures for carrying out the examination are described by al-Khāzinī: they all involve weighing samples of the two substances and the alloy in both air and water. When the 'air-weight' of a sample has been obtained by weighing it in scale N, it was transferred to scale H, which is immersed in water in a tank. The scales are then moved until equilibrium is again reached, so giving the 'water-weight' of the sample. Al-Khāzinī states clearly that he is aware of the variation of the density of water due both to the temperature and to the nature of the water itself, including the quantity and nature of the salts and other solids dissolved in it. He therefore recommends that water from a particular source be used as a standard and also that the temperature of the water when observations are made be taken into account. Unfortunately, he does not tell us how the temperature is estimated.

Optics

From antiquity onwards a number of scientists had concerned themselves with the study of optics. There were two basic theories of vision: *emission* – the eyes emit rays which when they strike the object enable it to be seen; and *intromission* – objects emit rays in all directions: some of these pass through the pupils and are the cause of vision. The first (incorrect) theory was supported by Aristotle and followed by Euclid, Ptolemy and al-Kindī. The second theory, approximately the correct one, was postulated by Epicurus. Before the tenth century, however, despite a total geometrization of the visual process by Euclid and the tentative introduction of experimental methods by Ptolemy, optics was mainly a subject for speculation.

The situation was revolutionized by Ibn al-Haytham (965–1039). The work that has made his name live through the centuries is his *Kitāb al-Manāzir* [Book of Optics]. He postulated that vision occurs when a 'form' emanating from the object enters the eye. He tried to show, by applying geometric methods, how a form capable of representing the visible feature of an object, whether large or small, can enter the pupil and make its way to the brain, where the process of vision is completed. He also constructed a highly original theory of the psychology of visual perception. Ibn al-Haytham's superiority to other writers on optics soon became clear to medieval Latin writers and he was widely studied by scientists such as Roger Bacon, John Pecham and Witelo.

For reasons that are not entirely clear, the *Kitāb al-Manāzir* of Ibn al-Haytham seems to have been virtually unknown in the Islamic world until the end of the thirteenth century. Only then did the Arabic text receive the attention it deserved in the form of a critical commentary written in Arabic by the Persian Kamāl al-Dīn al-Fārisī (d. *c.* 1320). In this commentary, al-Fārisī not only brought Ibn al-Haytham's work to the attention of Muslim scholars, but also made important contributions of his own.

Perhaps al-Fārisī's most important achievement was his successful explanation of the rainbow phenomenon, which had defeated all his predecessors since antiquity. In part of his *Kitāb al-Shifā'* [Book of Healing], Ibn Sīnā, while refuting the Aristotelian explanation of the rainbow, had mentioned the analogy between a raindrop and a glass sphere. This inspired al-Fārisī, who undertook a series of experimental inquiries into the behaviour of light as it passes through a glass vial filled with water. As a result of these inquiries, he was able to give a satisfactory account of both the primary and the secondary bow: the light from the sun enters the drop, to which the vial corresponds, before it is reflected at its far side to the observer; the primary bow is produced by one such reflection, whereas the secondary bow is produced by two internal reflections. The reversal of the colours in the two bows is thus explained. Al-Fārisī continued and extended Ibn al-Haytham's researches, notably into the investigation of the phenomenon of the *camera obscura*. Although neither

Ibn al-Haytham nor al-Fārisī succeeded in solving the general problem of the *camera*, some of their conclusions formed part of the solution.

The most remarkable feature of the work of these Islamic physicists – al-Bīrūnī, al-Khāzinī, Ibn al-Haytham, al-Fārisī and others – is the truly scientific manner in which they investigated physical phenomena by applying mathematics to complex experimental results.

Civil and hydraulic engineering

BUILDING CONSTRUCTION

Throughout most of Central Asia, the most important building in every city was undoubtedly the mosque. In Iran the mosque acquired distinctive characteristics through enriching the hypostyle form with two elements deeply rooted in pre-Islamic Iranian architecture: the domed chamber and the *aiwān*, a vaulted hall, open at the front, with a rectangular arched facade. The Seljuq period, especially between *c.* 1080 and 1150, witnessed an upsurge in mosque-building activity and the emergence of this dominant Iranian style. The major mosques built at this time have as their major focus a domed chamber enclosing the *mihrāb* (prayer niche) and preceded by a lofty *aiwān*. The sanctuary *aiwān* opens on to a courtyard with an *aiwān* at the centre of each axis. The combination of the domed chamber, often flanked by arcaded and vaulted prayer halls, together with the already ancient four-*aiwān* courtyard style created a definitive layout that was to dominate Iranian architecture for centuries. The style also spread westwards to Egypt and Anatolia and eastwards to Central Asia and India and influenced the architecture of other building types such as *madrasa*s (colleges for higher instruction in the religious and other sciences) and caravanserais. In the Timurid period there was a tendency to construct very large mosques, for example the Ziyaratgah near Herat and the mosque of Bībī Khānum at Samarkand.

In the north-west of the Indian subcontinent, the continuous history of the mosque begins after the conquest of Delhi in 1191 with the construction of the Quwwat al-Islam mosque, although there are records of mosques having been built earlier by Muslim traders. Other notable medieval Indian mosques are Bayāna (1316–20), Nizām al-Dīn (1325), Jhansi (1412) and Khayrpur (1494). These are of course only a few of the many medieval mosques in what are now Pakistan and northern India.

Apart from religious buildings, the other monumental type of construction in Central Asia is concerned with defence. Almost every city was walled, with guard towers, and gates that could be closed at night. At Bukhara, for example, the Arab geographers identify, as usual, three main divisions of the city: the citadel (Arabic, *qal*ᶜ*a*; Persian, *arg*), whose wall was about 1.5 km in

length, the town proper (*madīna*, *shahristān*) and the suburbs (*rabad*, *bīrūn*). In the ninth century the town was linked to the suburbs and surrounded by a wall. In the following century another wall was built enclosing a greater area: it had 11 gates. In mountainous areas, fortresses often depended more for their protection on a strong natural position than upon elaborate fortifications. In the plains, where it was usually necessary to guard against incursions from the steppe nomads, fortifications were systematically laid out. Some of the most impressive were in Khwarazm. They had as their main feature, within one or two perimeters with rounded towers, a massive square central keep with battered walls, standing on a solid base of mud-brick and entered from the perimeter gatehouse by a bridge at the first storey. This type of fortification became general in the region in the second and third centuries. It was in the twelfth and thirteenth centuries, however, that the art of fortification reached its fullest development with the massive structures of the Khwarazm Shahs.

The different forms of towers designated by the Arabic word *burj* always formed the principal elements in the fortifications, which were erected in the Islamic lands, both in the west and in the east. These lofty and massive edifices played a protective role in the Middle Ages in defending town and citadel ramparts, in serving as defensive strongholds or on occasion standing as isolated constructions (watch-towers, signal towers). They were to remain of importance until, late in the fourteenth century, heavy artillery replaced the old stone-throwing machines in both offensive and defensive applications.

The most distinctive form of tower in the Islamic world, however, is the minaret. By the tenth century the dominant type of minaret, as with the mosques themselves, was of the Iranian pattern, although these may originally have owed something to the regions on the northern and eastern fringes of Iran, such as north-western India, Middle Asia and even China. Many minarets were built in the eleventh and twelfth centuries in Iran. These Seljuq minarets are often around 30 m high (with a pronounced taper which accentuates their height), internal stairways and lavish external decorations of geometric or calligraphic patterns. Some of the minarets of the period were erected along the major routes to serve, *inter alia*, as signposts. As much caravan travel was by night, a lamp at the top of a minaret would allow the building to serve as a landlocked lighthouse. Indeed, a literary reference establishes that in 1185 the practice of placing a lamp at the top of a minaret was sufficiently familiar in Khurasan to cause no comment.

Three of the most notable minarets of the medieval period in Central Asia are: the twelfth-century Kalyan minaret in Bukhara, 45.3 m high; also from the twelfth century, the minaret at Jam in Afghanistan at about 60 m; and the Qutb Minar in Delhi, completed in 1236 to a height of 70 m (see below, Chapter 18, Figs. 11, 12 and 59).

Bridge building

Five types of bridge were in common use in Central Asia since earliest times, all having been introduced centuries before the medieval period. They were: beam; pontoon; cantilever; suspension; and masonry arch (see Figs. 4 and 5). Beam bridges were undoubtedly the earliest bridges known to man, since in their most rudimentary form all that they consist of is a stone slab or a log placed across a ditch or a small stream. Timber is used for all except the shortest spans because it can withstand higher tensile stresses than stone. Even so, wooden beam bridges are limited to spans of about 6 m. In 1221 a Chinese mission on its way to visit Chinggis Khan at Samarkand crossed no fewer than 48 such bridges in the T'ien Shan mountains. They were wide enough to allow two carts to pass side by side. Over shallow water or dry depressions, timber or masonry piers were often constructed and spans could be numerous.

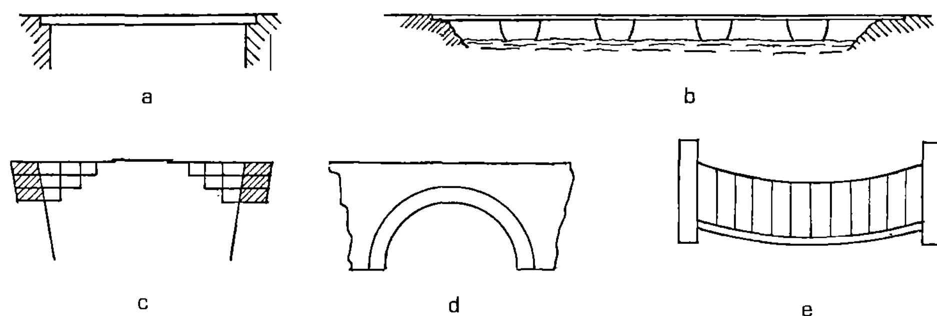


Fig. 4. Types of bridge: (a) beam; (b) pontoon; (c) cantilever; (d) arch; (e) suspension.



Fig. 5. Type of arched bridge, on the road from Mashhad to Herat. (Photo: Courtesy of C. Adle.)

Pontoon bridges are of great antiquity and maintained their popularity in medieval times. Since they are not suitable for use in fast-flowing rivers, they were usually constructed over lowland rivers such as the Nile, Tigris and Euphrates. Even with these relatively slow watercourses it was sometimes necessary to anchor the boats, not only to the river beds, but also to steel cables stretched between the banks. In Islamic Central Asia a pontoon bridge over the River Helmand in Afghanistan was described in the tenth century. Further east, many floating bridges were recorded, notable examples being the numerous such bridges described by the Taoist Ch'iu Ch'ang-Ch'un on his mission to Samarkand in the early thirteenth century. A famous one was built over the Amu Darya (Oxus) in a single month by Ch'ang Jung, the chief engineer of Chaghatay, Chinggis Khan's second son.

Cantilever and suspension bridges were in common use throughout the mountain ranges of Central Asia: the western Himalayas, T'ien Shan, Karakorum, Hindu Kush and Pamirs. Without these types of bridge for crossing ravines and turbulent streams, communications in this difficult terrain would have been extremely difficult. Records of cantilever bridges are very scanty and the bridges themselves, being constructed of timber, were rebuilt many times over the centuries. Nevertheless, there is sufficient evidence to indicate that they were widely used. The two cantilever arms are either built out from abutments filled with rocks or the bridge timbers are embedded directly in the rocky banks. The two spans are then connected in the middle by long wooden beams.

Most of our information about suspension bridges comes from Chinese sources. The earliest suspension bridges consisted of three ropes, one of which was the tread-rope, the other two acting as hand-rails. A later development was the construction of a deck which could either be catenary-shaped or horizontal. The decisive step in the construction of suspension bridges was the use of wrought-iron chains, which were invented in south-west China not later than the sixth century. There is a literary reference to iron-chain suspension bridges on the upper Indus as early as the seventh century and there are a number of other reports in Chinese sources, including descriptions of bridges of this type in north-west China at the time of Qubilay Khan in 1253.

The arch had been known since Sumerian times and of course arch bridges were common in the Roman empire, both for roads and for aqueducts. They were also in widespread use in other parts of the Old World long before the Middle Ages. They were generally built of hewn stonework, sometimes of burnt bricks. Many masonry bridges from classical and medieval times have survived and there are numerous references to this type of bridge in both Arabic and Chinese sources. To take but one example, the great stone bridge over the River Wakhsh in eastern Transoxania, which still exists, was described by the geographer al-Istakhrī in the tenth century and by Zakariyyā b. Muhammad al-Qazwīnī in the thirteenth. Al-Qazwīnī also gives us one of the

few descriptions we have of the construction of an arch bridge. At Idhaj, about 100 km south of Isfahan, a great arch bridge was built about the year 970 over a ravine. In typically Islamic fashion, the masonry piers were strengthened with lead dowels and iron clamps.

IRRIGATION

Descriptions of some of the great medieval irrigation systems of Central Asia have been left to us in the writings of the Arab geographers. In the tenth century the River Sughd and its tributaries watered a fertile area in which were located the cities of Bukhara and, about 240 km upstream and due east, Samarkand. The whole region, then ruled by the Samanids, was exceedingly fertile. Where the river left the mountains, several diversion dams divided up its waters and canals were led off that irrigated both the lands around Samarkand and the districts on the north bank of the river. Of the canals flowing to Samarkand, two were large enough to carry boats. Several large towns between Samarkand and Bukhara were irrigated by canals from the Sughd river. Outside the Great Wall enclosing Bukhara and its suburbs, canals were again led off for the irrigation of the city lands within the wall and for the districts beyond. Some of the chief canals leading to the city of Bukhara are described as having been large enough to carry boats. The area did not recover from the devastation caused by the Mongol invasion of 1219 for over a century. Some of its former prosperity was restored in the fourteenth century, however, when Timur made Samarkand his capital.

Another notable irrigation system served the city of Merv. The system utilized the waters of the Murghab river. One march south of the city its bed was artificially dyked with embankments faced by woodworks, which kept the river from changing course. The irrigation system in the tenth century was under the control of a specially appointed official, the *mīr-āb*, who is said to have had more power than the prefect of the city. With 10,000 men under him, he saw to the upkeep of the dykes and the regulation of the water-supply. There was even a team of 300 divers, each of whom kept a supply of timber with him to repair the dykes when needed. On the embankment was a gauge which registered the flood height; in a year of abundance this would rise to 60 barleycorns above the low-level and the people then rejoiced, while in a year of drought it would only attain the level of 6 barleycorns. At the distance of 1 league south of Merv, the waters of the river were impounded in a great round pool whence 4 canals radiated to the various quarters of the city and the suburbs. The height of the water in the pool was regulated by sluices, and there was a great festival when at high flood-time the various dams were cut and the waters divided according to rule.

Large irrigation systems based upon major rivers were not, of course, the only means of supporting agriculture. In many arid regions without perennial

streams, small communities survived by watering their lands from wells. More important as a source of both water-supply and irrigation were the *qanāts* (subterranean irrigation channels). The *qanāt* (Arabic; in Persian, *kārīz*) is an underground conduit which brings water from an aquifer to the point where it is needed, often over a distance of many kilometres. The route of a *qanāt* can be observed by the line of vertical shafts, 20–150 m apart, used to excavate spoil and provide ventilation. The lines of such shafts, with rings of spoil around the openings, can be seen in many places in Iran, where the *qanāt* is still an important source of water. In medieval times the geographers mention the use of *qanāts* in many places in Central Asia. At Nishapur, for example, some *qanāts* went under the town and came to the surface in the farms and countryside. Others surfaced in the city and entered buildings and gardens. The whole system was supervised by inspectors.

Diversion dams, to direct water from rivers into canals, are an essential part of most irrigation systems. The wooden dykes and dams that were part of the networks serving Bukhara and Samarkand have already been mentioned. On the Helmand river in southern Afghanistan about 50 km upstream from Zarang, the capital of Sistan, the river was checked by six great dams, which had been built to hold up its waters for irrigation needs, and at this point the major volume of the main stream was drawn into five great canals flowing towards Zarang and Lake Zarah beyond it.

During the thirteenth and fourteenth centuries, when Iran and much of Central Asia were under Mongol rule, a number of interesting dams were built, although further exploration is required to locate the sites of many of them. One Mongol dam, dating to the early fourteenth century, is of great interest and importance. It was built in north-central Iran across a V-shaped gorge of limestone rock. The dam, which has survived intact, is 26 m high and 55 m long at the crest. The crest thickness is at no point less than 4.5 m and nowhere more than 5 m. Up both sides of the dam the limestone rock was cut away to form grooves as wide as the thickness of the dam and the dam was built into these grooves. These joints have remained watertight over the centuries. Such abutments were essential to prevent slippage because the dam is a very thin structure, too thin to act as a gravity dam. It is, in fact, an arch dam, the oldest surviving example of this type of structure so far located. The radius of curvature of its air face is 38 m at all points.

Hydraulic machinery

Water-raising devices are a necessity in arid or semi-arid lands, either to raise water from wells or as an integral element in irrigation systems. Even in low-lying areas, machines are required to lift the water 1 or 2 metres over the banks of rivers or canals and discharge it into the canal networks. The simplest device, the *shādūf*, had been in use throughout most of the Old World since antiquity.

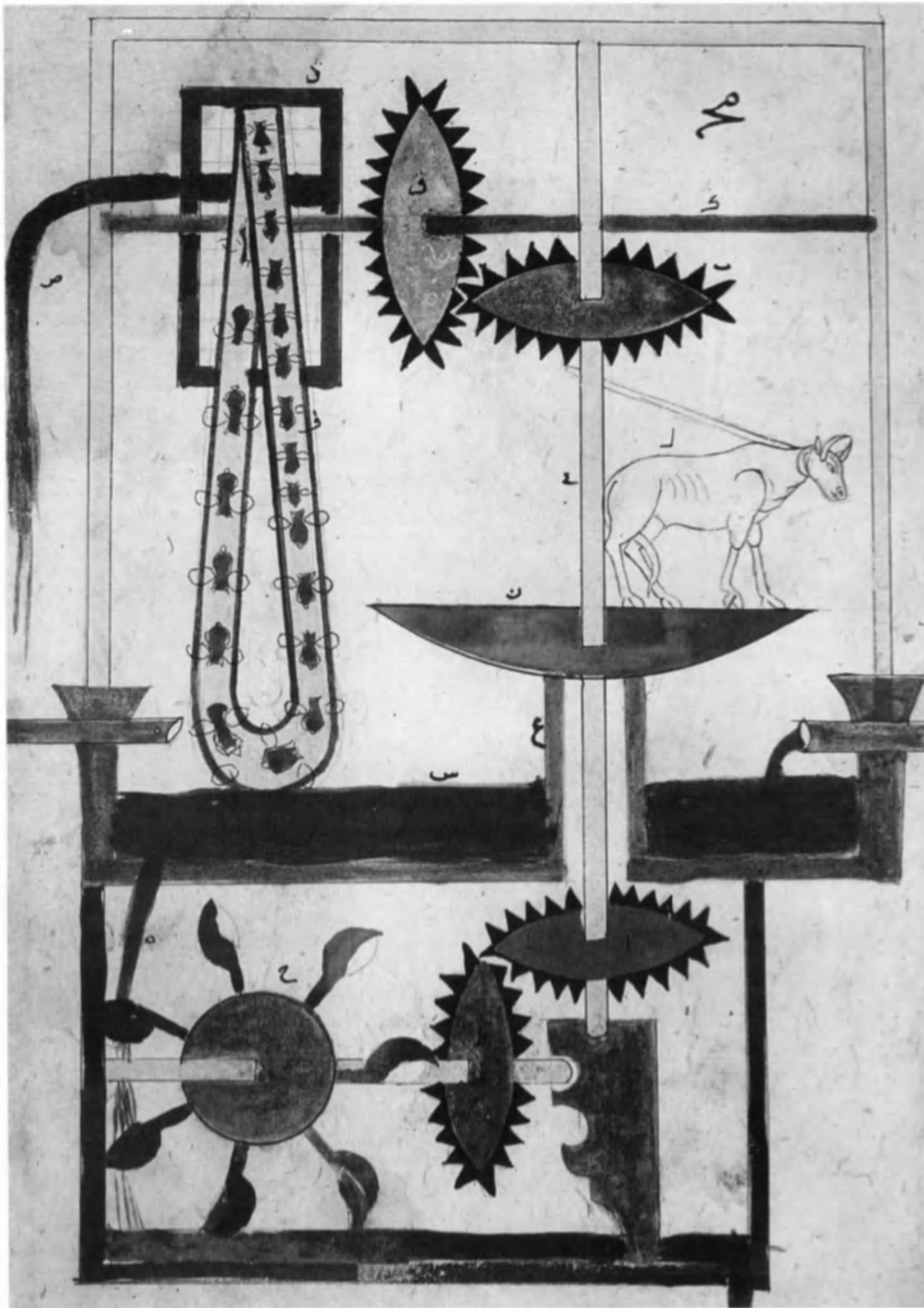


FIG. 6. Al-Jazarī's third water-raising machine.
From Graves 27 MS, Bodleian Library, Oxford. The animal is a wooden model.
The actual motive power comes from the scoop-wheel concealed beneath the floor.
The Sindi wheel is at the top left-hand corner of the illustration.
(Photo: Courtesy of D. R. Hill.)

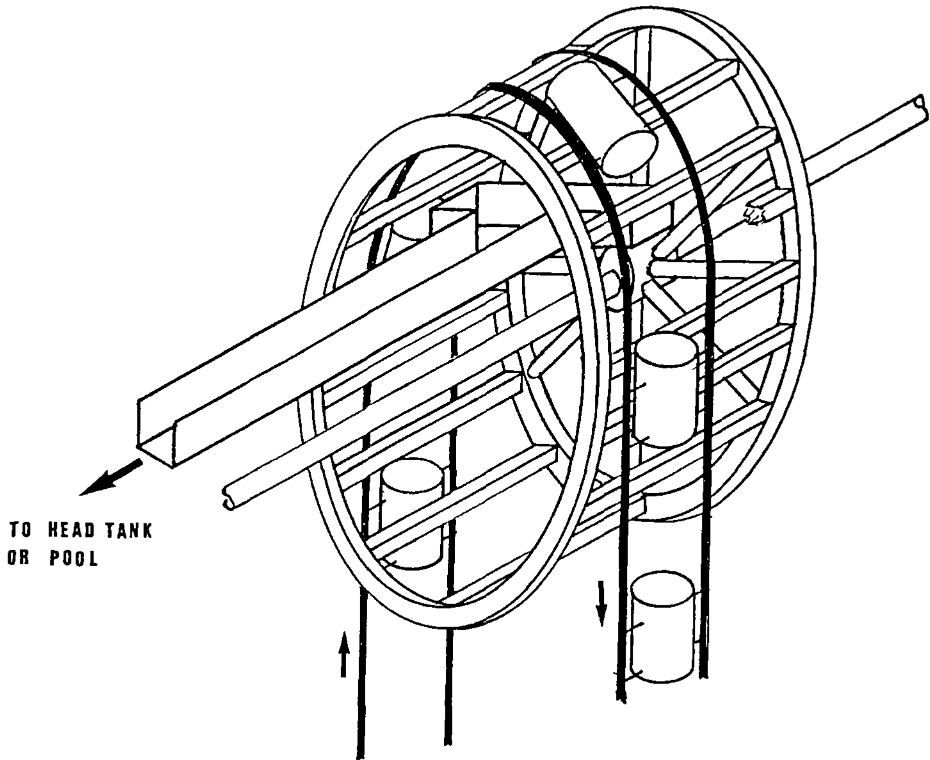


FIG. 7. Sindi wheel.

It consists of a wooden pole suspended at a fulcrum to a beam. A counterweight of stone or clay is fixed to the short arm of the pole while at the end of the long arm a bucket is suspended. The bucket is lowered into the water and allowed to fill and is then raised by the action of the counterweight and its contents are discharged into an irrigation ditch or a head tank.

More powerful machines than the *shādūf* are required for substantial irrigation systems. The two most important of these are the *sāqiya* and the noria (*nāʿūra*). The *sāqiya* consists of a chain-of-pots, or pot-garland, which forms a continuous belt over a large wheel. On the other side of the rim of the wheel from the pot-garland are wooden cogs that mesh with the spokes of a horizontal lantern-pinion. A draw-bar is fixed to the upper shaft of this pinion and an animal – usually an ox or a donkey – walks in a circular path, so rotating the lantern-pinion and the pot-garland wheel (Fig. 6). The pots dip in succession into the water and at the top of their journey discharge their contents. There is evidence for the existence of *sāqiya*s in Egypt by the first century B.C. at the latest, and it is highly probable that the machine was invented in that country. They were certainly in widespread use in Central Asia before the

advent of Islam and then through the medieval period up to modern times. One of the problems with *sāqiyas* is how to avoid spillage when the pots discharge. This can best be avoided by having the pot-garland rotate over a special wheel that is separate from the two gears. The head tank to which the discharge channel is connected is located in the hollow interior of this wheel. Al-Jazarī calls this component a Sindi wheel (Fig. 7). It is probable, therefore, that the *sāqiya* in its original form was transmitted to India by the Hellenistic Greeks and that this improvement was made to it in Sind in the north-west of the Indian subcontinent.

The noria is a large spoked wheel made of timber. Its rim is either divided into compartments, or pots similar to those of the *sāqiya* are lashed to it. Paddles project at intervals between the compartments or pots. The wheel is erected on a horizontal axle over a running stream and is rotated by the impact of the water on the paddles. The compartments or pots dip into the water and are filled with it; at the top of their journey they discharge into irrigation ditches or aqueducts. The noria is a significant machine in the history of technology since it is self-acting and requires the intervention of neither man nor animal for its operation.

The origin of the noria is still an unresolved question. It was mentioned by the Roman writer Vitruvius in the first century B.C. and it certainly spread throughout the Hellenistic world and into south-west Asia before the advent of Islam. On the other hand, there is evidence for norias in use in China by the second century A.D. and perhaps earlier. The designation 'Persian wheel' for the noria is not of much evidential value since this is a recent usage. In view of the almost simultaneous appearance of the machine in the Roman world and in East Asia, an intermediate point of origin in Central Asia is a reasonable conjecture (for a further consideration of irrigation techniques in Central Asian lands specifically, see Chapter 11 below).

Industrial processes and manufacturing, and craft activities

The production of metals is a basic industry since many other industries depend upon it for their tools and raw materials. Many techniques were used in the extraction of metals, but here mention can be made of only a few. Gold was obtained from washed ores either by amalgamation with mercury or by the cupellation method. Native silver was found in some places, but generally the metal was extracted in combination with lead ores; a number of processes used to extract the silver are relevant to the development of modern chemical techniques. Pure zinc oxide was obtained from natural zinc carbonate, one of the main areas being in Kirman. Copper was usually obtained from the sulphide

ores, which required roasting, smelting with special fluxes and partial oxidation. Bronze, used mainly for plain kitchenware, is an alloy of copper and tin. Brass, an alloy of copper and zinc, was made by heating copper in a mixture of powdered zinc ore and charcoal; some zinc was diffused into the copper by a process known as cementation. The manufacture of iron and steel is a vast subject that cannot be entered into here in detail. In the context of this work, it is important to note that crucible steel of fine quality was made at Herat, in Bukhara and in northern India.

Arms and machines of war

The principal personal weapons in use in Central Asia were the sword, the lance and the bow. There was no typical Islamic sword – the construction, length and shape varied from one area to another. The curved scimitar, often regarded as typical of Islamic weaponry, did not come into use until quite late – it may have appeared in the fourteenth century. The commonest type of sword was straight with one cutting edge. Lances varied from simple types consisting of iron spearheads fitted to the branches of trees to longer lances made of good-quality wood tipped with heads of fine steel. The principal centres for the manufacture of steel weapons in Central Asia were Khwarazm, Ferghana and northern India. The commonest type of bow was the composite, reflex type made of wood, horn and sinew glued together. The finest of these were those known as *chahār-kham*, made in northern India. During the medieval period, the *chahār-kham* was widely used and it can be seen in miniature paintings in the hands of Hindus and Muslims alike.

There were two types of stone-throwing siege engines: the traction type operated by a team of men pulling on ropes and the more powerful counterweight machine. The first originated in China and had reached Central Asia by the time of the first Arab invasions in the seventh century. On the other hand, the heavier machine originated in Mediterranean Christendom or western Islam late in the twelfth century. Its use was allegedly taught to the armies of Qubilay Khan by two Persian Muslims.

Ceramics, glass and jewellery

The transformation of ceramics after the advent of Islam took place in areas where their production had long been established. In Central Asia these centres were mainly in Khurasan and Transoxania. External influences, particularly Chinese, were an important factor in the development of Islamic pottery from the outset. Moreover, the continued importation of Chinese ceramics and Chinese artisans influenced the design of Islamic pottery throughout the medieval period. Nevertheless, the many surviving examples of pottery from Central Asia leave us in no doubt that Islamic ceramics, both in methods of



FIG. 8. Samarkand. Detail of tile-work from the Shah-i Zinda.
(Photo: Courtesy of I. Iskender-Mochiri.)

manufacture and in decoration, had a distinctive identity. Khurasan and Transoxania were major producers of ceramics. Tile mosaics and glazed bricks were produced in Khurasan and adjoining areas. Some of the best examples of buildings embellished with this type of decoration date to the Timurid period in Herat and Samarkand (see Fig. 8).

Islamic glass was made by fusing together two main ingredients – ashes and sand or flint (silica). In addition, magnesia was often added to produce a colourless, transparent glass. Distinctively Islamic techniques for glass-making spread eastwards from centres such as al-Raqqa and Damascus in Syria, and Samarra in Iraq. By the ninth century these influences were evident in Central Asian glassware. Interesting pieces can be seen, for example, in the Victoria and Albert Museum in London. These include an early example of a cut-glass bottle, dated to Iran in the tenth century, and a glass bottle blown in two moulds from eleventh-century Iran (for glassware, see also above, Chapter 9).

By the tenth century, an Islamization of pre-Islamic models of jewellery had become established in Central Asia. An amulet case, belt fittings and some gold and silver rings, excavated at Nishapur and dated to *c.* 1000, are clearly Islamic in their design and inscriptions. The rings, in particular, were the prototypes for much of the jewellery made in Central Asia in subsequent centuries. Fortunately, there are a number of fine examples of medieval jewellery from Central Asia in museums in London, Paris, New York, the Hermitage in St Petersburg and so on. These include the pieces excavated from Nishapur, gold bracelets, pendants and earrings from eastern Iran (eleventh to the thirteenth century) and rings and bracelets from Transoxania (fifteenth century).

CARPETS, TEXTILES AND LEATHER-WORKING

Despite the importance of carpet manufacture in Central Asia into modern times, there are very few remains of carpets from earlier centuries. Sufficient evidence exists, however, to indicate that the region has been a centre of the industry since antiquity. The oldest Islamic carpets to have been preserved from Central Asia date from the end of the fifteenth century. These Timurid carpets either have geometric patterns with Kufic writing in the borders or they have arabesque and flower patterns. Herat was the centre for the latter type of design.

The textile industry was one of the most important in the economy of medieval Central Asia. Kabul and Herat had cotton factories noted for the excellence of their products; Kabul exported cotton goods as far as China. Other important centres of the cotton industry were Nishapur, Samarkand, Bukhara and Khwarazm. The breeding of silkworms had started in the Middle East before the advent of Islam. The caliphs and other rulers erected state factories for production of *tirāz* (the elaborate decorative embroidery on robes of honour and other luxury clothing). When the Mongols overran Central Asia in the thir-

teenth century, Chinese motifs were introduced into Islamic textile designs in Iran and Turkistan.

All eastern Iranian and Central Asian cities had leather industries, most of the raw materials coming from the herds of the steppe nomads. Balkh was famous for its hides and Tus for its belts, while there were separate markets in Nishapur for cobblers and boot-makers. Bookbinding was a skilled and esteemed speciality in leather-working. The gold tooling of book covers seems to have evolved in Iran, whence it eventually spread to northern Europe by way of Venice in the sixteenth century.

COIN MINTING AND PAPER-MAKING

The standard of early Islamic coinage was extremely high, but in the eleventh and twelfth centuries dinars of low-grade electrum containing a large percentage of silver were minted in Khurasan. Silver and copper dinars of eastern Iran and Transoxania are known from Mongol and post-Mongol times. Until the year 813 there is no indication of the mint, but thereafter the name of the mint appears regularly in the date formula in Rayy, Merv and many other cities. There was an important mint at Nishapur where gold coins were minted in the eleventh century. Coins like these were often incorporated in pieces of jewellery (Fig. 9).

The technique of paper-making was introduced to the Islamic world by Chinese prisoners-of-war who were brought to Samarkand after the battle of Talas between the Arabs and the Chinese in 751. Rags of linen, flax or hemp provided the raw materials as they did in China: these rags were immersed in water and pounded by trip-hammers operated by water-power; the process is



FIG. 9. Nishapur. Gold coin of Mahmūd Ghaznavī (392/1002). (Photo: Courtesy of M. I. Mochiri.)

described by al-Bīrūnī. His description is very important, since it is one of the earliest reports of water-mills used for a purpose other than the grinding of corn. From Samarkand the manufacture of paper spread rapidly throughout the Islamic world, creating a kind of cultural revolution with a dramatic increase in the copying of books. The professions of copyist and bookseller flourished; in Baghdad alone at the end of the ninth century, there were more than 100 premises at which books were made.

The foregoing brief survey inevitably omits a number of industries that were of importance in the vast area of Central Asia over a period of some seven and a half centuries. One subject that is too extensive even to summarize is the food industry, whereby the produce of agriculture was processed both for local consumption and for export. In view of modern developments, another industry that is of great interest is the oil production of the Baku fields. These were developed on a commercial scale by the Muslims at an early date. In 915 al-Masᶜūdī commented on the trade in oil from Baku, and in the thirteenth century Marco Polo reported that 100 shiploads might be taken from Baku at one time. After refining, the petroleum was used in military applications, as a fuel and a medicine.

11

NATURAL LIFE AND THE MANMADE HABITAT IN CENTRAL ASIA

A. R. Mukhamejanov

Natural conditions exerted a considerable influence on the cultural and historical development of society in Central Asia. Natural resources constituted a major factor of production and greatly facilitated the development of such important sectors of the economy as livestock-breeding and agriculture. The varied physical geography also affected the nature and rate of the historical development of agriculture, and, specifically, that of irrigated agriculture in the different regions of Central Asia. The flora and fauna played a particular part in that context.

It must be admitted, however, that we do not yet possess anything like the full set of data (with the exception of isolated archaeological data and fragmented information from the written sources) which would enable us to make a specific assessment of the biology and zoology of Central Asia from the eighth to the fifteenth century. Yet practically all of the historical species and families are preserved in the region's modern flora and fauna, save for particular forms and species which have disappeared, thanks to the action of *Homo sapiens*. Consequently, most of the information about Central Asian flora and fauna presented in this chapter has inevitably been taken from the works of modern botanists and zoologists.

Flora

The flora of Central Asia is highly specific, like the other natural characteristics of the region. The broad range of ecological conditions and the vastness of the territory provide the setting for a great diversity of plant families and contrasting landscapes. The flora consists of 8,094 species of wild plants, according to the *Opredelitel' rasteniy Sredney Azii* [Guide to the Plants of Central Asia]. The plants accounting for the greatest number of species are the Aster family, *Asteraceae* (*Compositae*), with 1,351 species; the legumes, *Fabaceae* (*Legu-*

minosae), with 927 species; the mint family, *Lamiaceae* (*Labiatae*), with 455 species; the parsley family, *Apiaceae* (*Umbelliferae*), with 419 species; the grasses, *Poaceae* (*Graminae*), with 415 species; the lily family, *Liliaceae*, with 396 species; the *Brassicaceae* or *Cruciferae*, with 390 species; the pink family, *Caryophyllaceae*, with 286 species; the rosaceous family, *Rosaceae*, with 264 species; the *Chenopodiaceae* family, with 242 species; the borage family, *Boraginaceae*, with 230 species; and the buckwheat family, *Polygonaceae*, with 157 species. The onion (*Allium*) exhibits great variety with 191 species. Over 70 per cent of the flora of Central Asia is accounted for by the species just listed.

One of the characteristic features of the region's flora is the predominance of endemic species, which amount to 65–70 per cent of all vegetation. The composition of Central Asian flora bears some resemblance to that of the flora of the eastern Transcaucasus, Iran, Afghanistan and the Himalayas. Some individual species, particularly mountain species, are similar to European vegetation, whereas the flora of the north-eastern T'ien Shan exhibits some of the same general features as that of the Altai.

The plants of Central Asia belong to the belt of subtropical flora and are divided into two broad categories: those of the desert steppe and those found in mountain regions. These categories are further divided by Uzbek botanists into four zones: plains (*chöl* or *dasht*), foothills (*adyr*), mountains (*tau*) and high summer pastures (*yaylā*).[1] Perennial herbaceous plants, shrubs and subshrubs predominate in the desert and steppe areas. There are very few spore-bearing plants. Another characteristic of vegetation in Central Asia is the absence of continuous plant cover. Plants are very sparsely distributed over the steppe and mountain slopes. Forest vegetation is only encountered in mountain areas and the forest trees do not include pine, larch, oak or lime; broad-leaved evergreens and shrubs are also absent. On the other hand, substantial expanses of forest consist of fruit-trees such as walnut (*Juglans regia*), almond (*Amygdalus*), pistachio *Pistacia*) and apricot (*Armeniaca*). The flora of Central Asia also changes very noticeably from season to season. The delicate, succulent spring plants rapidly wither with the onset of summer, to be replaced by coarser and more resistant ones. These in turn are succeeded by even hardier wormwoods (*Artemisia*), camel thorn (*Alhagi*) and halophytes (*Salsola*, etc.). In place of an almost unbroken green covering of grasses, strewn with flowers, a forest of giant *Umbelliferae* rises up, only the withered stems of which remain by the end of the summer.

The desert-steppe zone covers all of the plains and the lowland belt of Central Asia. There are approximately 1,600 species of desert-steppe flora which represent more than 20 per cent of the entire flora of the region. The plants which are best represented in terms of numbers of species are the *Chenopodiaceae* (with 256 species), the *Compositae* (160 species), the legumes

1. K. Z. Zakirov and P. K. Zakirov, 1978, p. 35.



FIG. 1. General view of a desert in Central Asia.
(Photo: © V. Terebenin.)

(148 species), the *Cruciferae* (96 species), the lilies (72 species), the grasses (62 species), the buckwheat family (58 species) and the *Umbelliferae* (46 species).[2] In the sand desert, most of the grass cover is made up of sand sedge (*Carex arenaria* and *Carex physodes*), Richter's saltwort (*Salsola richterii*), some 50 species of *Calligonum*, *Astragalus unifoliatus* and a species of bindweed (*Convolvulus hamadae*). The commonest arboreal plant is white saxaul (*Haloxylon persicum*). Although the sand deserts sustain very little herbaceous flora, it is worth noting that *Cruciferae*, *Papilionaceae*, *Polygonaceae*, *Umbelliferae*, *Compositae*, *Salsolae* and hundreds of other plants seldom if ever encountered in other zones of Central Asia are to be found there.

In sand deserts with scarce water resources, of the *kok* type, shallow lakes formed in springtime by rainwater, groundwater (wells) and springs enabled pasture to be used on a year-round basis for the raising and grazing of sheep, goats and, especially, camels. Gypsum and *takyr*-clay deserts cover much of the plains of Central Asia: the Ustyurt plateau, the Mangïshlak peninsula and particular massifs in the north-western and south-western Kyzyl Kum and also

2. Korovin, 1961–2, Vol. 1, p. 223.



FIG. 2. General view of loess steppe surrounding the mountainous zone. (Photo: © V. Terebenin.)

in the Kara Kum (Fig. 1). The vegetation there is sparser than in the sand deserts. Although there are 400 species of plants, the landscape is given its special character by a small number of these, which include wormwood (*Artemisia*) and the genus *Anabasis* including *biyurgun* (*Anabasis salsa*). Saxaul is common on the plateaux. Annual grasses constitute a significant part of the plant cover of the gypsum desert. Ephemerals include *Carex pachystylis*, *Carex physodes*, bulbous meadow grass (*Poa bulbosa*), *Colpodium*, rhubarb (*Rheum*) and *Calligonum*. A far richer and more varied flora is to be found in the deep ravines of Ustyurt, including rose (*Rosa*), capers (*Capparis*), *Peganum*, various species of Astragal, camel thorn, *Atriplex cana* and many others.[3]

Solonchaks covered in swollen, subereous and wet salts and clay *takyrs* (the beds of former shallow waters) are embedded in the vast expanses of the sand and gypsum deserts, which are practically devoid of vegetation. Several halophytes are to be found there: Russian thistle (*Kalidium*), a species of saxaul (*Haloxylon aphyllum*) and species of the genuses *Halocnemum* and *Halostachys*. The fruit and young sprigs of saxaul keep sheep and camels well provided with fodder.

3. Masal'skiy, 1913, pp. 214–15.

On the broad belt of low-lying loess steppe surrounding the mountainous zone of Central Asia the humidity is slightly higher than in the desert and the plant cover more developed, although there are no trees. The main types of vegetation on the loess steppe are various types of Gramineae, annual grasses and small subshrubs (Fig. 2). The grass cover consists of meadow grass, *Agropyron*, fescue (*Festaca valesiaca*), awnless brome (*Bromus inermis*), needlegrass (*Stipa Lessingiana*), feather grass (*Achnatherum*), Astragal, camel thorn, wormwood and many other forms. It is in springtime that the steppe is to be seen in all its glory. Crocuses, crimson and yellow tulips (*Tulipa iliensis*, *Tulipa altaica*) and iris come into bloom at the end of April, followed at the beginning of May by lilac and red poppies (*Papaver*).

The plains and foothills of Central Asia are dissected by broad river valleys where the plant cover offers a sharp contrast to the flora of the sand deserts and clay steppe. The brakes and thickets along the river valleys are popularly known as *tugai*. *Tugai* forests stretch along the Amu Darya (Oxus), Syr Darya (Jaxartes), Zarafshan, Chirchik, Murghab, Tejen and many other rivers in Central Asia (Fig. 3). As well as trees, shrubs and grasses have developed in the river valleys. Among the trees frequently found are various species of poplar



FIG. 3. General view of a forest along the rivers of Central Asia. (Photo: © V. Terebenin.)

(*Populus*), willow (*Salix*), ash (*Fraxinus*), Russian olive (*Elaeagnus angustifolia*), buckthorn (*Hippophae*), as well as a species of saxaul (*Haloxylon aphyllum*). Various species of tamarisk (*Tamaris*) and of *Halimodendron* and certain species of *Halostachys* are among the common shrubs. Grasses which are commonly encountered include licorice (*Glycyrrhiza*), camel thorn, common reed (*Phragmites communis*) and *Erianthus*, as well as small thickets of dogbane (*Apocynum*).[4]

The foothills, or *adyrs*, which form a broad circle around the mountains of Central Asia, have the loess steppe on one side and the mountain flora zone on the other; occupying a fairly wide band of sloping terrain, they have a mixed mountain-steppe profile. The flora of the Central Asian foothills is comprised mainly of grasses, subshrubs and small shrubs. It includes a huge variety of Astragals (up to 200 species), *Oxytropis* (up to 70 species) and *Acanthophyllum*, wormwood and many other forms. A number of valuable honey plants are found on the lower foothills, including capers (*Capparis*) and some species of *Crambe* and *Phlomis*; there are also many vivid flowering species of *Eremurus*, tulips and irises. During medieval times, the foothills of many Central Asian mountain ranges were covered in *Juniperus sabina* and other species of Juniper, pistachio and several broad-leaved trees. When the Arab troops of the caliphate invaded the Ferghana valley in the eighth century, thickets of juniper, walnut, Acer, apricot, wild apple, almond, pistachio and other trees still not only covered the mountains surrounding the valley but came down to the edges of the cultivated oases. This vegetation was later destroyed, surviving only in inaccessible mountain areas.[5] Aromatic species of *Perovskia*, medicinal species of larkspur (*Delphinium*), *Hypericum* and elecampane (*Inula helenium*) and many other forms also grow in this zone.

The flora is most abundant in the mountain zone, the *tau* or *tag*. Trees and shrubs are most developed there and there are practically no ephemerals. Thin forests of xerophytic juniper are widespread. The mountain slopes are home to pistachio, elm (*Ulmus*), Celtis, Acer, almond, fig (*Ficus carica*), pear (*Pyrus*), mahaleb cherry (*Cerasum mahaleb*) and, in places, apricot, apple (*Malus*), white mulberry (*Morus alba*), wild grapevine (*Vitis*) and pomegranate (*Punica granatum*). Growing on the higher mountain slopes are poplar (*Populus*), plane (*Platanus*), birch (*Betula*) and even Sorbus, with hawthorn (*Crataegus*). The lower slopes abound in shrubs: species of barberry (*Berberis oblonga*), rose, larkspur, currant, buckthorn and many other forms. The range of herbaceous plants is particularly large. There are many aromatic and tannic forms: sage, *Rumex*, tulips and *Eremurus*. Rocky areas are covered in xerophytes.[6]

4. Masal'skiy, 1913, p. 228.
5. K. Z. Zakirov and P. K. Zakirov, 1978, p. 36; Masal'skiy, 1913, p. 229.
6. Masal'skiy, 1913, pp. 232–8; Korovin, 1961–2, Vol. 2, pp. 26–38; K. Z. Zakirov and P. K. Zakirov, 1978, p. 37.

The conditions necessary for the development of trees and shrubs are not present in the high mountains, or *yaylā*. This is a rocky zone but there are level areas of syrt and tableland. Roughly 30 per cent of the area is covered by vegetation, the remainder consisting of rock formations with sparse plant cover. Meadows of rough grasses and *Gramineae* play an important part in the plant life of the high mountains. In the foothills of the Zarafshan range, for example, meadows of *Polygonum* are often found; and in the western T'ien Shan and southern Pamir and Alai, meadows of *Umbelliferae* (*Ferula* and *Prangos*), as well as of geranium, tarragon and foxtail. Most of the high-mountain meadows consist of colourful mixed grasses: *Oxytropis*, gentian, primula, crowfoot, onion, *Pedicularis*, cinquefoil and other similar forms. Meadow-grasses (Alpine meadow-grass, true Alpine cat's tail, fescue, Himalayan foxtail, etc.) and *Cyperaceae* (black sedge, oval-headed sedge; kobresia, etc.) are also typical of these areas.

Thus xerophilous mountain plants are specific to the high mountains in the southern areas of Central Asia.[7] It is worth noting that there are some 600 medicinal plants among the flora of the region, most of which have been and continue to be used in folk medicine. Many of these plants entered the medieval pharmacopoeia as a result of the practical activities of thinkers from the ninth to the eleventh century, including Abū ᶜAlī Ibn Sīnā, Abū ᶜAbd Allāh Mūsā al-Khwārazmī and Abū Bakr al-Rāzī.

In describing the plant life of Central Asia, it should be emphasized that, whatever the overall area of arboreal plantations, the natural mountain forests have always played a major role in determining the stream-flow regime of the rivers, on which irrigated agriculture and its planned development depend. Largely located on steep, easily eroded slopes where they facilitate the growth of herbaceous vegetation, forest thickets delay the melting of the snow and also hold back the melt water, controlling its flow into the rivers and thus reducing the destructive action of seasonal mountain torrents.

Fauna

The animal world of Central Asia was extremely varied and specific to the area in medieval and ancient times, in part because of the geographic position but also due to the varied relief and natural conditions of the Inner Asian plains. The unique character of Central Asia with its expansive steppe-land gave rise to a number of forms which are native to no other region: the vast majority of the endemic species are natural inhabitants of the steppe and sandy deserts. Although the entire region is basically desert steppe in character, the animal

7. K. Z. Zakirov and P. K. Zakirov, 1978, pp. 37–9.

life in its different geographic zones differs appreciably. Some animals can also be found in neighbouring regions or even further away. Whereas north-eastern areas are home to a considerable number of animals that also inhabit the Altai and Siberia, species and forms related to those of Tibet, India and North Africa can be found in southern areas.

A large number of species are represented in the fauna of Central Asia, which comprises some 800 species of vertebrates, including 105 species of fish, 9 amphibians, 79 reptiles, 459 birds and 153 mammals,[8] among which there are more than 10 ungulates: the Persian gazelle (*Gazella subgutturosa*), the Turkistan red deer (*Cervus Bactrianus*), the fallow deer (*Cervus dama*), the markhor (*Capra falconeri*), the wild goat (*Capra hircus aegagrus*), the Siberian ibex (*Capra Sibirica Pallus*), the roe (*Capreolus*), the Pamir argali (*Ovis ammon pollii*), the mouflon (*Ovis orientalis*), the saiga (*Saiga tatarica*), the Asiatic wild ass (*Equus hemionus pall*), the yak (*Bos grunniens*), the wild boar (*Sus scrofa*) and others.[9]

As regards the mammal population, Central Asia may be divided into six geographic zones: Ustyurt; the area to the south-east of the Caspian Sea; the valley of the Amu Darya with the Khiva oasis; the Kyzyl Kum desert; the Balkhash basin; and the mountain massifs of the T'ien Shan and the Pamirs and Alai.[10] Of these zones, Ustyurt possesses the species that are most common, including the hedgehog (*Hemiechinus hypomelas*), the corsac fox (*Vulpes corsak*), the wolf (*Canis lupus*), the Karaganka fox (*Vulpes karagan*), the Steppe cat or manill (*Felis libuca manul*), the sand badger (*Meles arenarius*), the large-toothed suslik (*Citellus fulvus Licht*), the midday gerbil (*Meriones meridianus*), the striped field mouse (*Apodemus agrarius*), the migratory hamster (*Cricetulus migratorius*), the yellow Steppe lemming (*Lagurus luteus*), the jerboa family (*Scirtopoda telum Licht*), the Tolai hare (*Lepus tolai lehmanni*), the kulan, the saiga, the Pamir argali and the goitred or Persian gazelle. Seals (*Phoca Caspica*) were common on the shores of the Caspian.

In the southern part of the region to the east of the Caspian Sea, a large number of sand-dwelling creatures and feline predators are found, together with some Indian forms at the northern limit of their area of distribution. For example, among the 20 members of the Chiroptera order commonly found in the region is Hemprich's long-eared bat (*Otonycteris hemprichi*), one of the species from India and North Africa. Predators are particularly widespread. In addition to the badger, the wolf, the jackal (*Canis aureus*) and several species of fox, we find the Indian honey-badger (*Mellivora indica*), the Turkistan marten (*martes foina*), the tiger weasel (*Vormela peregusna*), the weasel (*Mustela nivalis*), the common otter (*Lutra lutra*), the striped hyena (*Hyaena hyaena*), the

8. Zakhidov and Meklenburtsev, 1969, Vol. 2, p. 591.
9. Ibid., pp. 238–59.
10. Ibid., p. 256.

Turanian tiger (*Felis tigris virgata Matsch*), the Steppe wild cat (*Felis libyca Forst*), the jungle cat (*Felis chaus Güld*), the caracal lynx (*Felis caracal michaelis Hept*), the manill (*Felis manul*), the cheetah (*Acinonyx jubatus*), the snow leopard or ounce (*Felis uncia Schreb*) and the leopard (*Felis pardus tulliana*). Small rodents are very common over wide areas. As regards the *Ungulata*, the undergrowth by river-banks teems with boar, while the goitred gazelle and the kulan roam the steppes. The brakes and thickets beside rivers provide refuge not only for boar but also for leopard, tiger, dormouse (*Myoxus glis caspicus, Eliomys nitedula*), porcupine (*Hystrix leucura*) and maral (*Cervus maral*), found only in the part of the region bordering the Caspian. Among the many species inhabiting the mountains and ravines of the Kopet Dagh mention should be made of the leopard, the snow leopard, the hyena, the bear (*Ursus arctos syriacus*), the red pika (*Ochotona rutila*), the wild goat and the Pamir argali.

Species commonly found in the valley of the Amu Darya include the wolf, the Karaganka fox, the jackal, the jungle cat, the cheetah, the Turanian tiger and many other predators. Among the most widespread are the boar, the Turkistan red deer living in the *tugai* scrub, and also a particular species of ground rat (*Nesokia boetgeri*).

The Kara Kum and the Kyzyl Kum are a veritable reserve of small rodents. In addition to the quite numerous species of rodents such as the long-clawed ground squirrel (*Spermophilopsii lepodactylus*), the striped field mouse and several species of jerboas, the region is also home to the Karaganka fox, the saiga, the hare, the goitred gazelle and the kulan.

There are many similarities between the animal life of the Kyzyl Kum and that of the Balkhash basin, where there are also enormous numbers of steppe rodents, both large and small. As well as porcupines and hares, one also finds bats, long-eared hedgehogs, badgers, Siberian polecats, ermine, otters, wolves, corsacs and the Karaganka fox, goitred gazelle and kulan. Boar and tigers are often found in the *tugai* scrub along the river-banks.

The fauna of the T'ien Shan and the Pamir-Alai is quite diverse. Aside from the plentiful rodents, one finds, for example, the bear (*Ursus leuconyx*), the red bear (*Ursus arctos isabellinus*), the badger, the marten, the white and red wolf (*Canis lupus desertorum, c. l. chanko*), fox, tiger, snow leopard, lynx (*Felis lynx isabellina*), the alpine polecat (*Mustela eversmanni larvata*), the Bukhara hyena (*Hyaena bokhariensis*), mountain sheep, Pamir argali and goats, T'ien Shan roe, maral and boar. One typical domesticated inhabitant of the high uplands of the Pamir-Alai is the yak (*Bos grunniens*).[11]

The bird life of Central Asia is also very distinctive, with a profusion of species, some features being shared with Siberia and the Altai and some with

11. Zakhidov and Meklenburtsev, 1969, Vol. 2, pp. 138–258; Masal'skiy, 1913, pp. 256–8; Bogdanov, 1992, pp. 211–84.

Tibet, the Himalayas, India and even Arabia and North Africa. Northern and near-polar forms coexist with southern, subtropical and even tropical forms in the expanses of Central Asia. The former naturally predominate in the northern belt and the latter in the south, particularly on the south-western edge of the region. The bird species most typical of Central Asia are those of the steppe and the mountain systems of the T'ien Shan and Pamir-Alai, which include a number of forms found only in this region.

The principal family of predators is that of the vultures (*Gyps himalayensis, G. fulvus, G. manachus, Neophron percnopterus, Gypaetos barbatus*) and there are also many species of eagle (*Aquila chrysaetos, clanga, heliaca, nipalensis, orientalis* and *pennata*). Then come sea eagles (*Haliaeetus albicilla, H. leucoryphus*), falcons, kites (*Milvus korschun*), buzzards, hawks (*Accipiter badius cenchroides*), harriers (*Circus cyaneus, C. macrourus*), owls (*Athena noctua bactriana, A. n. orientalis*), eagle owls (*Bubo bubo*) and smaller birds of prey. Among the many members of the order Passeriformes and the woodpecker family (of the order Picidae), mention should be made of rooks, ravens, crows, jackdaws, choughs (*Pyrrhocorax*), magpies, starlings, nutcrackers (*Nucifraga caryocatactes*), thrushes (*Turdus viscivorus, T. philomelos, T. pilaris*), shrikes (*Lanius excubitor, L. minor*, etc.), chats (*Saxicola rubetra, S. caprata, S. torquata*), fly-catchers (*Muscicapa*), swallows and martins, larks (*Alauda arvensis, A. gulgula*, etc.), jays (*Podoces panderi*), tits (*Parus major, P. caeruleus*), buntings (*Emberiza cia, E. cioides*), the penduline tit (*Remiz pendulinus*), nightingales (*Luscinia, L. megarhynchos*), scrub warblers (*Scotocerca inquieta*), cuckoos (*Cuculus canorus*), pigeons and doves (*Columba livia*), rollers (*Coriacias garrulus*), nightjars (*Caprimulgus europaeus*), bee-eaters (*Merops apiaster*), nuthatches (*Sitta syriaca*), hoopoes (*Upupa epops*) and woodpeckers (*Picoides tridactylus*, etc.), which, with the onset of spring, enliven steppe, garden, mountain forest and the reeds and rushes of the *tugai*.

Blackcock and capercaillie are found in the mountain forests of north-eastern Central Asia. The many other forms of the order Galliformes include quail (*Coturnix coturnix*), common and rock partridge, snow-cock (*Tetragallos himalayensis*, etc.), francolins (*Francolinus francolinus*) and, above all, the various types of pheasant (*Phasianus colchicus*, etc.). Of these, the quail, rock partridge and pheasant are the commonest members of the Tetraonidae family in Central Asia. The same family is also represented by such very characteristic steppeland birds as the black-bellied sandgrouse (*Pterocles orientalis*), Pallas' sandgrouse (*Syrrhaptes paradoxus*) and the related form, *Syrrhaptes tibetanus*.

The most widespread species among the Gruiformes and related families are cranes (*Grus leucogeranus, G. lilfordi*), the little bustard (*Otis tetrax*), the great bustard (*Otis tarda*), the Houbara bustard (*Otis undulata*), the coot (*Fulica atra*), gallinules, including the moorhen (*Gallinula chloropus*) and the Indian gallinule (*Porphyrio poliocephalus*), and the corncrake (*Crex crex*). Members of the Columbidae family that may be encountered include doves (*Streptopelia*

turtur, etc.) and pigeons (*Columba livia*, etc.). In the suborder Charadrii we find snipe (*Gallinago*), woodcock (*Scolopax rusticala*), the jack snipe (*Lymnocryptes minimus*), pratincoles (*Glareola pratincola*), coursers (*Cursorius cursor*), lapwings (*Vanellus vanellus*), the lesser golden plover (*Pluvialis dominica*), the greenshank (*Tringa nebularia*), ruffs (*Philomachus pugnax*), stints (*Calidris minuta*), the stone curlew (*Burhinus oedicnemus*) and *Ibidorhyncha struthersii*.

The order Cinoniiformes and Pelecaniformes, which is fairly common, is represented by the spoonbill (*Platalea leucorodia*), the glossy ibis (*Plegadis falcinellus*), storks (*Ciconia asiatica*, *C. nigra*), herons (*Ardea cinerea*, *Egretta alba*, etc.), bitterns (*Botaurus stellaris*), pelicans (*Pelecanus onocrotalus*) and cormorants (*Phalacrocorax carbo*). The river deltas, lakes and seashores were populated by species belonging to the order Anseriformes and the order Macrochires and included sawbills (*Mergus merganser*), pochards (*Netta rufina*, etc.), dabbling ducks (*Anas penelope*, etc.), shelducks (*Tadorna tadorna*), swans (*Cygnus cygnus*), geese (*Anser anser*, etc.), flamingos (*Phoenicopterus roseus*), gulls (*Larus ridibundus*, etc.), tern (*Chlidonias hybrida*, etc.), some of which are present all year round and others on migration. The same areas are also inhabited by members of the order Podicipediformes such as the grebes (*Podiceps cristatus*, etc.) and also the loons (*Gavia arctica*, *G. stellata*), which alight on migration, sometimes wintering on the shores of the Caspian Sea.

The fish found in Central Asia are mainly common European-Siberian forms, with the addition of some Asiatic mountain forms. Of a total of 105 species, more than half belong to the carp family (*Cyprinidae*) and the others to the family of the true sturgeons (*Acipenseridae*) and the salmon family (*Salmonidae*). One particularity of the Central Asian piscine fauna is the presence in the main drainage basins of members of the genus *Schizothorax*, which is characteristic of mountainous regions of the Asian continent, and also the endemic genus, the false shovel-beaked sturgeon (*Pseudoscaphirhyncus*). It is worth noting that the fish found in the region to the east of the Caspian are closely related to the corresponding fauna of Asia Minor and are quite distinct from that of the Aral basin. The fish found in the Aral Sea and the Amu Darya and Syr Darya, particularly in their lower and middle reaches, are in the main European-Siberian forms among which a dominant place is occupied by the sturgeon (*Acipenser nudiventris*), the carp (*Cyprinus carpio*), the barbel (*Barbus brachycephalus*), the *Aspius* genus (*Aspius iblioides*), the carp-bream (*Abramis brama*) and the pike-perch (*Lucioperca*). No Aspius, carp-bream, sichel (*Pelecus*), catfish (*Silurus glanis*) or pike-perch are found to the east of the Syr Darya basin. Dominant among the fish on the upper reaches of rivers are such typical Euro-Asiatic forms as *Schizothorax*, *Schizapygopsis* and *Diptychus*.

The reptiles of Central Asia are mainly desert-steppe forms, but in the south and south-east of the region mountain forms are also to be found. Two types of tortoise are encountered: the pond tortoise (*Emys orbicularis*), which lives in the area stretching from the Caspian Sea to the Aral Sea and the Syr

Darya; and Horsfield's terrapin (*Testudo horsfieldi*), which is very common in all parts of Central Asia. The amphibians encountered in the region are the marsh frog (*Rana ridibunda*, *Rana terrestris*) and the green toad (*Bufo viridis*).

Steppe, sand and, sometimes, mountainous areas are home to various species of geckoes (*Gekkonidae*), agamas (*Agamidae*), lizards of the genera *Phrynocephalus* and *Eremias* as well as various monitors, from the tiny *Alsophylacs loricatus* to the large desert monitor (*Varanus griseus*). The snakes of Central Asia are also extremely varied. They include several highly poisonous species such as the cobra (*Naja oxiana*), *Vipera ursini*, the blunt-nosed viper (*Vipera lebetina*), the saw-scaled viper (*Echis carinata*) and *Ancistrodon halis*. The sand snake, the Asiatic sand snake (*Psammophis lineolatus*) and *Eryx miliaris* are to be found all over the steppes and sands of Central Asia. The area where the reptilian fauna is most abundant is the Aral-Caspian basin: a large number of species of Iranian, Indian and even African origin occur there.[12]

Natural habitat and patterns of human life

STOCKBREEDING

In line with the traditions established between the eighth and the fifteenth century on the basis of natural conditions, part of the population of Central Asia engaged in stockbreeding as well as cultivating the land. In spite of the scarcity of water resources, the vast steppes and mountain pastures of Central Asia provided a favourable environment for livestock-breeding and grazing. Stockbreeding therefore played a major role in the socio-economic life of the medieval population of the region. The main emphasis was on the breeding of cattle, sheep and goats, horses and, sometimes, camels. In the lives of the settled population, a place of some significance was assigned to the breeding of asses and, in mountain regions, notably in Semirechye and the Pamirs, to the breeding of yaks, both as draught animals and as a means of transport in the high mountains.

Horse-breeding was enormously important in the social, economic and cultural life of the peoples of Central Asia. Several breeds of horse were to be found, including the excellent, small, but very hardy steppe and mountain breeds (*beygir*) and thoroughbred riding horses (*karabeygir*). When Transoxania was conquered by the Arabs, the Arabian breed (*asp-i tāzī*) appeared in the region. The local *karabeygir* were later crossed with the Arabian breed to give the Turkmen *argamak*, the fast Akhaltekin horses. Huge herds of horses were always kept on the steppes and high pastures of Central Asia. For the nomadic

12. Zakhidov and Meklenburtsev, 1969, Vols. 1 and 2; Bogdanov, 1992.

pastoralists, the horse was not simply a form of transport and a bearer of loads but also a means of sustaining life. Its flesh was used for food, including a special kind of sausage (*kazy*), and fermented mare's milk was made into a drink known as *kumiss*. Horse hides were used to make a variety of articles: from the hides of foals, soft footwear was made, and also wide trousers and linings for the skirts and flaps of robes. Horse-breeding also had a strategic significance in the history of the peoples of Central Asia. The requisite number of horses was regularly drawn from the herds for the government's mounted forces. During military campaigns, an extra horse was provided for every two horsemen in Timur's army. In medieval times, equestrian sports were encouraged in feudal society, including *poiga* (races) and *chawgān* (polo). Fast, thoroughbred horses were therefore a luxury and a status symbol.

Cattle were bred by both the settled and the nomadic populations of Central Asia. As well as providing milk and meat, they were employed as draught animals in agriculture. From the cow's milk came *katik* (sour milk), *pishlok* (cheese), *kurut* (a dried milk product) and *maska* (butter). The hides of the bulls and cows were turned into leather from which various types of footwear were produced.

The form of livestock-breeding most widely practised in Central Asia was, however, sheep-rearing. The meat, fat, milk, hides and wool thus obtained were made into a large range of products including carpets, woollen fabrics, felt, rope, sacks, *khūrjīn* (saddle-bags) and *tūshak* (floor coverings). Fat-tailed sheep were highly prized, especially those of the Hissar and Karakul breeds which gave high-quality lambskins.

Camel-breeding also assumed considerable importance as camels, by virtue of their strength and powers of endurance, were the only means of transport in the steppes and deserts of the region. Two species of camel were bred in Central Asia: the one-humped *nortuya* and the two-humped *ayirtuya*. In the Islamic period, as in earlier times, there were trade routes across Central Asia using these 'ships of the desert'.

FISHING

Fishing was practised in some parts of Central Asia in medieval times as a secondary occupation. It was mainly concentrated along the shores of the Caspian and the Aral Sea and on the lower reaches of the Amu Darya and the Syr Darya; in Semirechye, on the Ili, Balkhash and Issyk-kül; and also on other lakes and rivers. The fishing gear consisted of seine nets, fixed gill nets and hooked snares; harpoons were also employed in some places. Sturgeon, barbel, species of *Aspius*, catfish, carp, pike-perch and carp-bream were caught. The fishing season normally began on the lower reaches of the rivers in the summer months, reaching the upper reaches in the autumn. According to the written sources, large catches of fish were made and many birds taken at Lake

Samjan near Paikent.[13] In Khwarazm, it had long been the tradition to go fishing on the river in summer. For several weeks, the people taking part in this popular festival would roast and eat the fish they had caught, accompanied by melon.[14]

HUNTING

In many parts of Asia, with the development of agriculture, and particularly livestock-breeding, hunting lost its former importance as an economic activity and became a secondary occupation. However, in the steppes and deserts of Central Asia, it continued long afterwards to play an important part in the economy of nomadic and semi-nomadic tribes. One such area was the expanse between the Caspian and the Aral Sea which, from the ninth to the fourteenth century, was occupied first by Oghuz and then by Kïpchak tribes. Hunting was organized in a variety of different ways according to the sources. People hunted singly or in groups depending on the quarry, using beaters, hunting birds and hounds (*tāz*), and, in places, erected different types of hides. The methods used to hunt animals and birds were highly diverse and included the use of nooses, snares, nets and traps. Foxes and hares were usually pursued by single hunters using hunting birds or dogs. One especially interesting hunting technique involved the use of falcons, hawks and golden eagles. Falcons were used in hunting large birds, whereas hawks went after quail. A golden eagle in flight could take a fox or corsac fox and even overtake a wolf. From the eighth to the fifteenth century, large-scale hunts using special barriers-cum-traps known as *aran*s were organized on the wide expanses between the Caspian and the Aral Sea and also on the eastern coast of the latter. The *aran* was a triangular enclosed area with rounded collection or accumulation points at each of the three corners. It was used in Ustyurt and Mangïshlak to capture hoofed animals such as the *kulan*, *saiga* antelope, goitred gazelle and the wild sheep or *arkhar*. *Kulan* and *arkhar* were caught in huge numbers in this way. The flesh was used for food, the hides for the manufacture of high-quality leather and the horns were exported to China.[15]

Another favourite pastime of people in Central Asia in those days, apart from hunting with birds, was the organizing of fights between domestic animals and birds. The animals involved would most often be rams, dogs or, sometimes, camels; the fighting birds would be cocks, hazel-grouse, rock partridge or even quail. Among the members of the aristocracy there were lovers of songbirds who kept peacocks, rock partridges, pheasants, doves, mynahs and quail

13. Narshakhi, 1957, p. 19.
14. Gulyamov, 1985, p. 65.
15. Yagodin, 1991, pp. 35, 55.

in their gardens or on their estates. In Bukhara in the tenth century there was a park (*kuruk*) measuring 1.6 km square which held deer, goitred gazelle, foxes and bears.[16] Describing one of the parks and gardens in Samarkand in the fourteenth century, the Castilian ambassador Ruy González de Clavijo wrote that Timur also kept many pheasants and deer in the garden of Dawlatabad.[17]

In short, people in Central Asia engaged in hunting both singly and in groups from the eighth to the fifteenth century. This was particularly true during military campaigns when organized hunts by attackers and defenders alike would result in the mass slaughter of wild animals for food.

Agriculture

Even in the ancient past, the main types of cereals and legumes were cultivated in Central Asia and the principal species of horned livestock, large and small, had been domesticated. By the early Middle Ages, 1,000 years' experience had already been accumulated in these two most important and widespread branches of the productive economy. Between the eighth and the fifteenth century, the bulk of the population was engaged in agriculture and livestock-breeding. Huge irrigation systems had been constructed in river valleys and deltas, enabling enormous areas of land to be reclaimed and brought under cultivation. Agricultural oases of varying extent had been created and intensive agriculture was made possible by the networks of complex irrigation works.

Although the waters of the two largest rivers in Central Asia, the Amu Darya and the Syr Darya, were almost never diverted for direct irrigation at the time (except on the lower reaches of the former, in the Khwarazm oasis), large trunk canals were built, for the most part on their tributaries. Thus large tracts of irrigated land were to be found along the northern tributaries of the Amu Darya and the Panj as well as in Khwarazm. The fertile lands of the Ferghana valley were irrigated by the tributaries of the Syr Darya: some mountain streams were diverted for that purpose to such good effect that they never reached the river. The Chach and Ilaq oases were the most flourishing in the Syr Darya basin. At the beginning of the ninth century, the caliphal government allocated 2 million dirhams for the construction of a large canal and the reinstatement of the urban water-supply system at Chach, which had been neglected since the Arab conquest of Transoxania.[18]

In the Zarafshan valley, the lands of the Samarkand and Bukhara oases were highly cultivated. From the second half of the eighth century until the eleventh century, all of the pre-alluvial land in the Zarafshan valley was under

16. Narshakhī, 1957, pp. 13, 29.
17. Clavijo, 1990, p. 58.
18. Al-Maqdisī, 1906, p. 202.

cultivation and the irrigation system was controlled by a head dam at Vargsar on the upper reaches of the river. According to the tenth-century geographers, 8 districts (*rustāq*s) of Samarkand were irrigated by 6 canals of varying size delivering water from the River Sughd, that is, the Zarafshan. From Vargsar to the borders of Bukhara, a 6-day journey, the river flowed past an uninterrupted sequence of gardens, market gardens and irrigation canals. The Bukhara oasis at this time covered 22 *rustāq*s, 15 of which were inside the defensive wall (*kanpirak*) which was erected at the end of the eighth century to protect the oasis from raids by nomadic tribes; the other 7 *rustāq*s were outside the wall. These *rustāq*s were irrigated by 17 major canals, and the length of the irrigated oasis was equal to 12 *farsakh*s (72 km).[19]

One of the most sophisticated irrigation systems of the period was in the Murghab basin. The headworks at Merv, the Sultanband (Emperor Dam), and the numerous canals leading from the river with hundreds of distributors were overseen by a body of *mīr-āb*s, or officials in charge of water distribution (see Chapter 10, above, pp. 265–6).

Much of the land in the foothills of Central Asia was brought under cultivation between the ninth and the eleventh century. Small reservoirs (*hauza*s) were built to exploit the melt water of mountain streams and the scarce reserves of spring water for the purpose of irrigation. Groundwater was harnessed by constructing underground conduits (*qanāt*s or *kārīz*s), a labour-intensive task. High-lying areas above the flood-plain were irrigated by means of Persian waterwheels (*charkh*s), which were widely employed at that period, especially in the Khwarazm oasis, and were often turned by camels.

Non-irrigated agriculture, or dry-farming, was common in the foothills of Central Asia, and even in areas where irrigated agriculture was highly developed, for example, in the basins of the Murghab and the Zarafshan, there was much non-irrigated land which produced significant quantities of crops.

There were essentially three forms of landholding in Central Asia between the eighth and the fifteenth century. The first was *mulk-i dīwān* (state land); the second, land belonging to religious and charitable institutions (*waqf*); and the third, private property, that is land belonging to feudal lords or peasants. For the purpose of tax assessment, private land was subdivided into three categories: *mulk-i khāss* (land exempt from taxation); *mulk-i ᶜushr* (land subject to the payment of a tithe); and *mulk-i kharāj* (land taxed at one-third of the entire harvest). Land grants, referred to as either *iqtāᶜ* or *soyurghal*, also existed (becoming more widespread during the period under discussion), primarily for members of the ruling élite and military commanders.

The land tax (*kharāj* or *ᶜushr*) was mainly payable in kind in the fourteenth and fifteenth centuries. *Kharāj* was levied on irrigated land and usually

19. Bartol'd, 1963, pp. 163–8.

amounted to one-third of the harvest, whereas *ʿushr* was assessed on non-irrigated land, at a rate of one-tenth of the harvest. The sources reveal, however, that, especially in times of war and unrest, *kharāj* might be collected several times a year.

The commonest agricultural implements in Central Asia were the *ketmen*, which resembled a hoe and which survives to the present day; and the common plough with an iron ploughshare, known as *omoch*. The latter was the only implement for tilling the soil used over the whole of Central Asia.

The sources of the time provide detailed descriptions of the occupations of people in the various agricultural oases of Central Asia, often noting the produce for which one or other locality was known. A variety of crops was grown in the oases and valleys: cereals, legumes, market-garden produce, cucumbers, animal fodder, fruits and berries. Cereals included wheat, barley, millet, sorghum and rice, and there were a number of varieties of wheat in Central Asia, the two main varieties grown being winter (*tramoī*) and spring (*bahār*) wheat.

The oregon pea (*Phaseolus aureus*) is the most common legume in the region, but other species are also found, including the garden pea (*Pisum sativum*), the lentil (*Lens esculenta*), the cowpea (*Vigna sinensis*), soya (*Soja hispida*), the grass pea (*Lathyrus sativus*), the chick-pea (*Cicer arietinum*) and the French bean (*Phaseolus vulgaris*). Of all the legumes, the most widespread in the oases was the oregon pea, which was usually sown as a second crop after the harvesting of winter or spring wheat or barley.

Rice cultivation was only developed in certain river valleys in Central Asia, mainly in the basin of the Parak and in Ilaq, in eastern Ferghana, the Samarkand oasis and in southern areas of Semirechye. Of oil-producing crops, the most important was sesame (*Sesamum indicum*), followed by flax, castor-oil plant (*Ricinus communis*), rocket (*Eruca sativa*), safflower (*Carthamus tinctorius*) and the opium poppy (*Papaver somniferum*). High-quality oil was obtained from rocket, flax and especially sesame. Safflower is another excellent oil-producing plant, grown in some parts of the Samarkand and Bukhara oases. However, the plant did not only produce a high-quality oil, its flowers were also used to make an orange-red dye used for silk and silk fabrics.

Cotton-growing was also highly developed in Central Asia during this period, as attested by written sources and confirmed by archaeological finds. Local varieties of cotton known as *ghūza* and *malā-ghūza* (*Gossypium herbaceum*) were grown on a large scale in the Zarafshan valley, in the Merv oasis, in Chach and in other areas. Central Asia led Western Asia in cotton production. In the ninth and tenth centuries, large quantities of cotton fabrics, *wadahārī* from Samarkand and *zandanīchī* from Bukhara and Merv, were exported from Central Asia to Iraq, Fars, Kirman, Hindustan and other countries. The tenth-century geographer Ibn Hawqal writes that one could find in Khurasan 'neither amir nor *wazīr* nor judge, rich man, common fellow or soldier

who did not wear *wadahārī* cloth over their winter garments: this they consider to be a mark of refinement and elegance'.[20]

Large areas, particularly surrounding towns and settlements, were taken up by gardens, vineyards, kitchen gardens and cucurbit plantations. Some varieties of fruit, grape and melon were prized far beyond the confines of Central Asia. Certain dyestuffs like madder (*Rubia tinctorum*) and saffron were also cultivated in certain areas.

In the vegetable gardens the commonest root crops were carrot, onion, beet, garden radish (*Raphanus sativus*) and field cabbage (*Brassica campestris*). Many sorts of melon were cultivated throughout the region; some winter varieties, especially those grown on the lower reaches of the Amu Darya, did not lose their flavour until April of the following year. Melons were dried in large slices and oil was obtained from their seed. Central Asian melons were famous even outside the region, and in the ninth century the best varieties were exported in special lead-lined boxes from Khwarazm as far as Baghdad.

Other cucurbit crops cultivated in addition to the melon and water melon were cucumbers, snake melon (*Cucumis flexuosus*), some species of squash and gourds. The fruits of the gourd were used as crockery: the smallest as snuff-boxes, larger ones as hookahs, bowls, water and vinegar bottles and as containers for free-flowing dry substances.

Herbaceous plants accounted for a certain proportion of vegetable crops: cabbage/*kurnub*, Guinea pepper (*Capsicum annuum*), dill, parsley, celery, ginger/*zanjabīl*, coriander/*kishnīz* (*Coriandrum*), basil/*rayhān* (*Ocimum basilicum*), summer savory/*jambīl* (*Satureja hortensis*), anise/*bādyān* and others.

Among fruits and berries, the most common were apricot, peach, apple, pear, mulberry, walnut and grapes. Other fruit-trees included quince, pomegranate, fig and mulberry. There was a considerable diversity of stony fruits: peach and apricot, in addition to wild cherry, cherry plum, plum, cherry, almond and pistachio, were among the species grown; some varieties of fruit and nuts were probably domesticated versions of species that grew wild in the hills of Central Asia.

The vine occupies a special position among the orchard crops of the region by virtue of the variety and local specificity of the species. There are over 200 different names recorded, testifying to the range of varieties known. From some species came *qishmish* (currants), *shinnī* (syrup), *musallas* (a special drink) and *serke* (grape vinegar); *qishmish* in particular was exported to neighbouring countries.

In the ninth to the twelfth century and later, especially in the late fourteenth and fifteenth centuries, it was the custom in the region to plant pleasure-grounds, orchards, parks and flower-beds, large and small. Thus the local

20. Ibn Hawqal, 1873, p. 403.

historian, Abū Bakr Muhammad Narshakhī (*fl.* mid-tenth century), describing the royal gardens near Bukhara, reports that parks and flower-beds, magnificent ornamental pools and orchards had been expertly laid out in the area of Juy-i Muliyan and Dashtak, 'producing an abundance of splendid pears, almonds, nuts, wild cherries and grapes'.[21] Such gardens were laid out on a geometric plan with a central avenue, and sometimes divided into four plots (*chahār-bāgh*), with an orderly system for the planting of ornamental trees, fruit-trees, shrubs and flowers, an irrigation network and *hawz*s (ponds), sometimes with fountains and cascades. Unfortunately, few traces are now left of the palaces, gardens and parks that once girdled many of the capital cities of Central Asia. Sources of the Timurid period list the many gardens and parks created by Timur and Ulugh Begh near Samarkand, such as the Bustan Aram, Zinat al-Dunya, Jannat al-Firdaws, Bustan al-Shimal and Jannat al-ᶜUlya, mentioned specifically by the fifteenth-century historian Ibn ᶜArabshāh.[22] The Bagh-i Dilgusha (The Heart-enthralling Garden), laid out by Timur in 1397 on the edge of the Kanagil valley, measured 1,500 *gaz* (1 *gaz* = 0.71 m) in length and in width, that is to say, over 100 ha.

LAND UTILIZATION

Irrigated agriculture and all the various types of works associated with it developed in three main zones in Central Asia: the foothills, isolated mountain valleys, and the plains, especially the deltas of the large rivers. These three zones, with their arid climate and their specific topography, soil type, vegetation and fauna, were ecologically the most favourable for the establishment and development of irrigated agriculture. Natural conditions in each of the three zones were so diverse as to give rise to quite distinctive groups of hydraulic structures, differing markedly from one zone to the other in terms of design and the construction materials employed. The actual area thus developed was extensive. According to S. P. Tolstov, a specialist on irrigation in Khwarazm in ancient pre-Islamic and medieval Islamic times, from the twelfth to the fourteenth century, the period during which irrigation reached its maximum extension on the lower reaches of the Amu Darya and the Syr Darya, a total of 2.4 million ha had been brought under cultivation, 1.4 million ha being under intensive irrigation.[23]

The canals that were built in medieval Islamic times might be narrow and deep; various types of pressure dam, distributors, spillways and other hydraulic structures were also constructed. The secondary distribution and irrigation

21. Narshakhī, 1957, p. 27.
22. Ibn ᶜArabshāh, 1992, p. 46.
23. Tolstov, 1962, p. 248.

network was more complex than that of ancient times, with a very fine branching system. Widespread use was made of rock-and-brushwood-dams, known as *varg* or *band*. Fascines, which were used on a wide scale for the construction of head dams, were known as *navala* in Zarafshan, *ulük* in the Ferghana valley, *karabura* in the Tashkent oasis and *vard* or *navard* in Khwarazm. They were made of brushwood, rocks and turf in the shape of cylinders some 6–8 m in length and 1–1.5 m in diameter. Outlet sluices were closed off with stoplogs. Contrivances involving a *sipā* (three-legged frame) or a *chār-pāy* (four-legged frame) were inserted in the upper reaches of rivers with a steep slope and high rate of flow in order to run off water for irrigation.[24]

One of the most important achievements of medieval irrigation technology was the invention and widespread application to irrigation of water-lifting devices, the commonest of which was the water-wheel, popularly known as the *chigir* in Khwarazm and as the *charkh-palak* in Tashkent and Ferghana (see also on these, Chapter 10 above). Six types of *charkh* were known in the Merv oasis in the tenth century: *dūlāb, dāliya, garafa, zurnuk, nāᶜūra* and *manjanūn*. The first was widely employed for irrigation and land reclamation in the Khwarazm oasis from the ninth to the thirteenth century, watering raised ground so that the level of the water-table did not rise and the soil was not exposed to the risk of salinization.

According to the hydrological engineer, B. V. Tsizerling, *chigir* irrigation in the conditions applying in the flood-plain and delta of the Amu Darya was the most satisfactory technical solution: 30–50 per cent less water was used than with the gravity-flow method; there was a much smaller risk of bog formation and salinization; the work needed to clean the irrigation system was reduced; hydrogeological conditions improved as did the quality of the land reclaimed; harvests increased; and land could be organized on a tighter and more rational basis.[25] With the widespread introduction of water-lifting devices and the development of a branching distribution system, the overall area serviced by irrigation systems fell sharply but crop intensity in the irrigated areas practically doubled. Hence medieval irrigation differed from earlier methods in its more economical use of irrigated land, its higher irrigation factor and its reduction of non-productive water use in the irrigation systems.

The achievements of architecture and construction engineering from the ninth to the twelfth century also contributed to the development of irrigation technology. It was at that time that builders started to use high-grade brick and mortar, which enabled them to create works such as the vaulted conduit (*tazar*), the subterranean canal (*lāgim* or *kārīz*), the aqueduct (*ābnāw*), the bridge-distributor (*suvayirgich*), the cistern (*sardāb*), the pond or reservoir (*hawz*),

24. Gulyamov, 1985, pp. 82–3.
25. Tsizerling, 1927, p. 588.

the mountain reservoir (*band*), etc. The remains of various medieval irrigation works provide evidence of a quite advanced knowledge of hydraulics and practical skills in the erection of complex structures. Thus from the eighth to the beginning of the thirteenth century, water was brought to Samarkand by a conduit known as the *jūy-i arzīz*, the bottom of which was lined with lead. The *jūy-i arzīz* and its arched supports were built of baked brick with a lime-and-ash mortar.

The urban water-supply became a key concern during this period. A complex urban water-distribution system was installed, with *dargāt* (weir), *kunda* (water distributor), *miftāh* (spillway), *hawz* (reservoir) and other structures. According to the late tenth-century geographer al-Maqdisī, the water for the city of Bukhara came through sluices closed by stop logs: 'When the flooding starts, the logs are removed one after another . . . so that much of the water flows out into the sluices and thereafter to Paikent . . . Below the town there are other sluices called *ra's al-wark* [head of the dam] which are built in the same way.'[26]

Between the tenth and the fifteenth century, the foothills of Central Asia were brought under cultivation. In the arid foothill areas, where there were no water sources of any significance, an important role was played by mountain reservoirs, of considerable dimensions for the period, which were built in ravines to contain the waters of seasonal mountain torrents. One of these reservoirs, built in the tenth century, has been discovered in the Khanbandi mountain ravine in the Pastag range, 12 km north of the foot of the Nuratau mountains in the Farish district of Jizak region. The reservoir dam blocking the ravine was constructed from granite, using a lime mortar with the addition of high-silica sand. Its length was 51.75 m at the top and 24.35 m at the base and its height was 15.25 m; it was 2.3 m thick at the top and 8.2 m thick at the base. The dam had 9 orifices for different water-levels in the reservoir, which were V-shaped when seen from above and on average 45–70 cm wide and 50–100 cm high. There was a reservoir in front of the dam which was about 1.5 km long for a width of 52 m at the dam and 200 m at the start of the ravine. It contained 1.6 million m^3 of water which was sufficient to irrigate an area of 1,500 ha.[27]

This Khanbandi dam is essentially the same as a modern retaining structure built with rubble masonry. Its design shows that the hydraulic engineers of the tenth century took not only the stability factor into account when building a dam but also the force of the frequent earthquakes in Central Asia. The most interesting feature of its engineering is that it was built in accordance with Pascal's law, 700 years before its formal enunciation by the seventeenth-century French mathematician and physicist. A quite considerable level of technical

26. Al-Maqdisī, 1906, pp. 331–2.
27. Mukhamejanov, 1978, pp. 248–50.

knowledge had thus been achieved in the tenth century. A similar example of medieval hydraulic engineering was built in the twelfth century in the Amandar ravine of the Zarafshan range and another in the fifteenth century in the Kafursay ravine in the Baysun mountains.[28]

Aqueducts, bridges and bridge-distributors were among the other structures built of rubble masonry at the period, such as the eleventh- to twelfth-century bridge-aqueduct on the road from Termez to Danau, and the Qantara (tenth–twelfth century) and Pul-i Shaybanikhan (1502) bridge-distributors.

The development of such irrigation structures was to a great extent linked with the durability of the structures built, which in turn depended on the composition of the building materials employed. Chemical and technical analysis of their composition has made it possible to determine the structure of the mortars used at one period or another, the places where various binder components were used and the strength of the brick. For example, from the tenth to the fifteenth century the building bricks for hydraulic structures were baked at a temperature of 800–950° and their strength was as much as 175–250 kg/cm^2.

In medieval times, when there was no binding material available with the strength of cement, it was very important to use a waterproof mortar for the construction of hydraulic works. In the main, three types of binder were used: binary mixtures consisting of lime and ash or of lime and sand; and a three-part mixture of lime, ash and *ganch* (gypsum). These mixtures with their various ingredients were used on a strict zonal basis. For example, a mixture of 50–60 per cent lime, 35 per cent plant ash and 2.5–6 per cent *ganch* was used in constantly humid areas, whereas a mixture of 50 per cent lime, 40 per cent plant ash and 10 per cent *ganch* was employed in areas with a varied hydrological cycle, a mortar of 100 per cent *ganch* being applied to the upper part of the structure which was not in contact with the water.[29] An examination of surviving medieval hydraulic structures and analysis of the construction materials employed make it likely that they were built to specific plans, drawn up in advance by a *muhandis* (engineer-architect), their various components being carefully calculated.

The development of science, and especially of mathematics and geometry, on the one hand, and of architecture and civil engineering on the other, together with improvements in the production of construction materials and greater practical experience of irrigation, thus made possible the construction of huge works of hydraulic engineering from the eighth to the fifteenth century, using rubble or brick with a hydraulic mortar, despite interruptions by warfare and unrest.

Water management in the agricultural oases of Central Asia in medieval

28. Rtveladze and Iskhakov, 1977, p. 18.
29. Mukhamejanov, 1978, p. 277.

times was costly, hence inevitably planned and controlled by rulers and magnates. The sources contain many references to the involvement of rulers in the construction of large canals, dams, reservoirs and bridges, and many structures were thus named after rulers: the hydraulic system in the Varakhshin oasis at Bukhara was called the Varkshah (Shah Dam); the tenth-century reservoir in Farish, the Khanband (Khan Reservoir); the fifteenth-century reservoir in the Kafursay ravine, the Sar-i tag (Head Dam); the bridge-distributor on the Zarafshan near Samarkand from the tenth to the twelfth and in the fifteenth century, the Pul-i Shadman Malik (Bridge of the Master of Shadman); and the twelfth-century Merv dam, the Sultanband (Sultan Dam).

We are especially well-informed about conditions during the twelfth century in Merv, where there was an entire administrative department engaged in water-supply management, the Dīwān-i Āb (Water Department). It was staffed by a large number of *mīr-āb*s (responsible for the main canals), *varkbān*s or *bandbān*s (responsible for guarding the dams), up to 400 divers, *jūybān*s (supervisors of the leats or offtake canals), *āb-andāz*s (water-measurers responsible for releasing water from the upper reaches of the rivers) and so on. The staff numbered as many as 12,000.[30] All irrigation work – the removal of sediment from the canals, the repair of the dams, the sealing of breaches, etc. – was performed by the water users with their own resources under a system of collective labour known as *hashar*. Clearly the system of water management operating in the agricultural oases of Central Asia at this time was quite complex, involving techniques such as the diversion of water from sources, the construction of water intakes, the cleaning of canals and the distribution of irrigation water between users.

30. Bartol'd, 1965, Vol. 3, p. 150.

12

MEDICAL AND VETERINARY SCIENCES

L. Richter-Bernburg and H. M. Said

Part One

MEDICINE, PHARMACOLOGY AND VETERINARY SCIENCE IN ISLAMIC EASTERN IRAN AND CENTRAL ASIA

(L. Richter-Bernburg)

During the period under discussion, Central Asia's contribution to what might initially be called the elaboration, and subsequently, the flowering and continuance of Islamic civilization and culture can hardly be overestimated. Admittedly, in the early centuries, such contributions were often 'indirect', i.e. made as the result of a substantial 'brain drain' towards the central regions of the caliphate, and more specifically towards its capital, Baghdad. However, even during the heyday of the ᶜAbbasid regime, the centre by no means drained the provinces of all intellectual and artistic potential, and with the emergence of increasingly autonomous regional power centres all through the ninth century, talent had ever less far to travel in search of instruction and employment. Limiting ourselves to medicine and the allied disciplines – and bearing in mind the prominence of the polymath as a model of medieval scholarship – we need only mention Ibn Sīnā (Avicenna), al-Bīrūnī and Ismāᶜīl al-Jurjānī from the many names that come to mind in order to grasp the magnitude and the 'centrality' of Central Asia's contribution to medical learning in Islam (and beyond). It goes without saying that while individual genius can never adequately be explained with reference to the respective socio-cultural environment, it is equally true that talent does not as a rule unfold and take shape in a vacuum. Thus the presence of genius presupposes that of numerous lesser talents and of a certain material support structure – in the given context, the availability of books on the market and in libraries, whether a professional scholar's modest holdings or lavishly appointed, encyclopedic princely collections.

Owing to the nature of most extant sources, both textual and monumental, and to the bias of most existing research, the present survey concentrates on the formal, written tradition of medicine and on the institutions dedicated to its transmission and its practice in the service of public health. If 'vernacular' and folk medicine are by necessity neglected, this is not to deny them their rightful place in a true history of medicine, nor to claim that formal and vernacular medicine existed in separate spheres without interaction between them. It remains a task for future research to examine the manuscript tradition for testimonies of medical practice at variance with the formal prescriptive texts; the study of present-day popular and folk medicine as a potential witness to past conditions also awaits.

The growth and consummation of a scholastic tradition; the emergence of regional differentiation (750–1050)

In the present context, there is no need to rehearse once more the development of medical scholarship in Islam until Abū Bakr al-Rāzī (865–925).[1] The ease with which men and ideas traversed the vast expanse of the caliph's dominions hardly permits of identifying regional features in the works then composed. Furthermore, by way of the ʿAbbasid capital Baghdad as the great emporium of material and intellectual goods, such regional peculiarities as can be detected were fast distributed even to the remotest provinces.

As concerns Central Asia in particular, we know of Yahyā b. Khālid al-Barmakī (d. 805)[2] as a patron of physicians and, specifically, of the translation of Hindu medical works into both Arabic and Persian. In all likelihood, however, his activity took place in the orbit of the caliphal court in Iraq where, at the behest of Hārūn al-Rashīd (786–809), such books were translated into Arabic. Thus Khurasan and Transoxania were effectively bypassed in this transfer of learning from India to Islam, even though, undeniably, the Barmakids' cultural outlook owed something to their land of origin, northern Afghanistan, and Yahyā al-Barmakī's interest in medicine may have derived from a no longer identifiable family tradition.[3]

1. Obviously, only a few select references (each including further references) about al-Rāzī can be given here: Iskandar, 1990, pp. 370–7; *EI*[2], Vol. 8, 'al-Rāzī, Abū Bakr' (L. E. Goodman); Richter-Bernburg, 1994, pp. 377–92; *EncArLit*, 1998, 'Al-Rāzī, Abū Bakr' (G. Endress).
2. See Sezgin, 1970; generally on Yahyā al-Barmakī, see *EI*[1], 'Yaḥyā b. K͟hālid' (K. V. Zetterstéen); *EIr*, 'Barmakids' (I. Abbas). He can hardly be credited with the learned tracts attributed to him in some manuscripts.
3. See *EIr*, 'Barmakids' (I. Abbas), esp. at Vol. 3, p. 806.

This may also hold true for the Muslim scholar of Khurasanian Christian origin, ʿAlī b. Sahl Rabbān al-Tabarī (d. *c.* 864),[4] the author of the earliest Islamic medical pandects to be preserved, the *Firdaws al-hikma* [Paradise of Wisdom]; yet it would be inappropriate simply to view him as a representative of eastern Iranian or Transoxanian learning. Rather, he illustrates the above-mentioned gravitation of talent towards the caliphate's central lands. His *Firdaws*, dedicated in 855 to the caliph al-Mutawakkil (847–61) in Samarra, represents medical scholarship as available there and then; even if it were to contain specifically Khurasanian and Transoxanian lore (which would first have to be identified as such) it was instantly fused into the generic profile of metropolitan Islamic medicine of the period. With the possible exception of Hindu sources made available through the interest of Yahyā b. Khālid (see below, p. 321), even the unequivocally 'eastern' materials in his *Firdaws*, viz. its 'Indian books', had been imported directly from the Indus valley to Iraq and, as mentioned above, translated into Arabic there.

While commerce of men and ideas continued unimpeded throughout the caliphate in the generations following al-Rāzī, in the regions under discussion here, the tenth century saw a fundamental change in intellectual production. Its most manifest marker was linguistic: the adoption of the vernacular, Persian, for literary purposes in all fields, including religion and theology; in the event, in these areas (as well as, to a lesser degree, in scholarship generally), Arabic was to retain, or regain, its pre-eminent position. Nevertheless, alongside Arabic, Persian took its place as a medium of intellectual expression of ever greater ambition and complexity.

This is not the place to disentangle the still confusing web of motives which propelled the use of Persian instead of Arabic.[5] However, it may not be amiss to state the obvious once more: medical subjects are among the first to be treated in 'early New Persian' literature, both prose and verse, of the tenth and eleventh centuries.[6] Moreover, Persian medical writing exhibits irreducibly Iranian features, notwithstanding its evident literary dependence on Arabic models and a common foundation in Galenic humoral physiology and pathology, which again, was largely derived from authors writing in Arabic. For one thing, the very language, Persian, encompasses a body of knowledge of health matters which owes nothing to the Arabic transmission, although the impact of the latter is visible not least from the massive proportion of technical terminology. The extent of this 'native' medical knowledge still remains to be mapped, especially with respect to earlier, pre-Islamic stages of learned exchange with Greek and Indian science. On the other hand, it bears repeating that during the

4. Isaacs, 1990, pp. 345–6, 350; Sezgin, 1970, pp. 236–40.
5. Lazard, in *CHIr*, Vol. 4, pp. 628–32; Richter-Bernburg, 1974, pp. 55–64; and above, Chapter 4, Parts One and Two.
6. For precise references, see below.

tenth and eleventh centuries in Khurasan, Transoxania and the neighbouring regions, Arabic remained the preferred idiom of the most brilliant minds, in medicine as well as in all other disciplines.

If al-Rāzī is taken as a chronological signpost in the history of medicine in Islamic Central Asia, this is not to deny the existence of medical learning in the region before and during his lifetime; yet it seems fair to attribute such learning to imports from the caliphate's central provinces, including re-imports of the fruits of the labours of migrant countrymen. Admittedly, one of the first, if not the very first, medical treatises likely to have been composed in the region, and not merely by a native of the region, is the *Masālih al-abdān wa 'l-anfus* [Regimen of Body and Soul] by Abū Zayd al-Balkhi (850–934), the polymath of wide renown and eponym of a 'school' of geography (see above, Chapter 8).[7] In the generations following al-Rāzī, however, Iran and the neighbouring regions to the east contributed a generous share to the burgeoning, throughout the caliphate, of literary activity in the medical disciplines. Just as in the preceding century, authors, regardless from which province of the empire they came, represent a common cultural and 'academic' tradition, certain references to regional conditions notwithstanding.

In the sphere of general education, perhaps more strikingly than from within the medical profession proper, the unity of medicine in this period is demonstrated by Abū ᶜAbd Allāh al-Khwārazmī (*fl.* second half of tenth century) in his concise encyclopedia of the sciences, the *Mafātīh al-ᶜulūm* [Keys of the Sciences].[8] Thus no dividing line can be drawn between, for example, Abu 'l-Hasan Ahmad b. Muhammad al-Tabarī (*fl. c.* 970),[9] Abū Sahl Bishr al-Sijzī (*fl. c.* 980)[10] and ᶜAlī b. al-ᶜAbbās al-Majūsī (d. 994?),[11] as representatives of

7. Sezgin, 1970, p. 274; generally on al-Balkhī, see *EIr*, 'Abū Zayd al-Bal<u>k</u>ī' (W. M. Watt). The very title of al-Balkhī's treatise expresses the congruence between medicine and philosophy as it had been perceived ever since the Platonic Socrates, medicine tending the body's and philosophy the soul's health. Incidentally, rather than al-Balkhī's writing, it was a genetic contingency which gained him notoriety in the history of medicine; his springtime allergy to roses prompted al-Rāzi to devote a special work to its cure (Sezgin, 1970, pp. 275, 287 et seq., n. 24).
8. Written between 976 and 983; see on him *GAP*, Vol. 3, p. 294b, 'al-<u>H</u>wārazmī, Abū ᶜAbdallāh; *EI*², Vol. 4, 'al-<u>Kh</u>ʷārazmī, Abū ᶜAbd Allāh' (A. I. Sabra).
9. In his encyclopedic *magnum opus*, *al-Muᶜālajāt al-buqrātiyya* [Hippocratic Cures], which for long did not receive the recognition it deserved, he was the first to describe the parasite causing scabies, *Acarus scabiei*. Nothing of his life is known except that he and al-Majūsī both studied medicine with Abū Māhir Mūsā b. Yūsuf b. Sayyār; see *GAP*, Vol. 3, p. 122 (G. Endress); Ullmann, 1970, p. 140; Sezgin, 1970, pp. 307–8.
10. Bishr b. Yaᶜqūb dedicated his pandects, *al-Kunnāsh*, to the Saffarid amir Khalaf b. Ahmad; see Sezgin, 1970, pp. 325–6; Dietrich, 1966, pp. 65–9.
11. Of deserved fame as the author of *al-Kitāb al-Malakī – kāmil al-sināᶜa al-tibbiya* [The Royal Book: A Complete Exposition of the Art of Medicine], which he dedicated to, and named for, the Buyid ᶜAdud al-Dawla. Little is known of him except what has been derived from his

medicine in Iraq and western and central Iran on the one hand, and authors such as Rabīᶜ b. Ahmad al-Akhawaynī al-Bukhārī,[12] Abū Sahl al-Masīhī,[13] Abū Mansūr al-Qumrī[14] and al-Husayn al-Nātilī,[15] who were active further east, on the other hand. Further, such a division would ignore the phenomenon of the migrant scholar and 'expert', so prominent in the high caliphal and later periods of Islamic history; in addition to the preceding names, al-Hasan b. Suwār b. al-Khammār[16] can be cited as an example.

The above-mentioned names, while by no means exhaustive, are meant to highlight, for the middle to late tenth century and for the regions roughly circumscribed by the borders of the Samanid domain, the vibrant interest that medicine aroused among the educated élite, and the medical profession's thorough command of the theory and practice of their discipline. Without meaning to impose a teleological perspective on history, it might be said that the stage was thus set for the author whose works would dominate medicine for centuries to come, Abū ᶜAlī Ibn Sīnā, the medieval Latin Avicenna (*c.* 980–1037).[17] However, before the discussion turns to him, his scholarly ancestors deserve some mention.

As alluded to above, the tenth century saw far-reaching changes in intellectual life, at first in the Samanid territories and subsequently in the entire Iranian world: Arabic was no longer the sole medium of educated speech and writing, whether in verse or in prose, and medicine was among the first subjects to be treated in the new idiom. Of the three known medical texts in early New Persian, one even bears a precise date: in 980, at the age of 46 and after 3 years' work, Hakīm Maysarī completed his medical *mathnawī* (poem in couplets) of some 4,500 lines, entitled the *Dānish-nāma* [Book of Knowledge].[18] The author's choice of mnemonic verse for his medical compendium and its dedication to a member of the administrative-military élite, one Nāsir al-Dawla Sipahsālār-i Īrān,[19] underline the integration of medicine into the syllabus of

single great work; see, e.g. *EncArLit*, Vol. 2, pp. 497–8, 'al-Majūsī' (L. I. Conrad); Savage-Smith, 1996, Vol. 3, pp. 903–62, esp. pp. 917–20; Micheau, 1994, Vol. 10; *GAP*, Vol. 3, pp. 296a, 'al-Maǧūsī' (ref. to G. Endress); Richter-Bernburg, 1980, pp. 277–90; Ullmann, 1978, pp. 77 et seq.; 1970, pp. 140–6; Sezgin, 1970, pp. 320–2.

12. *EIr*, Vol. 1, pp. 706–7, 'Akavaynī Bokārī' (H. H. Biesterfeldt), and below.
13. *GAP*, Vol. 3, pp. 52, 123, 133, and below.
14. Ullmann, 1970, pp. 147, 236, 320, and below.
15. Gutas, 1988, esp. p. 24, n. 9; Ullmann, 1970, pp. 260–1 and below.
16. Ullmann, 1970, esp. p. 152, n. 5; Sezgin, 1970, pp. 322–3.
17. The conventionally accepted date of his birth has given cause for serious doubt and should consequently be moved back up to five years; see *EIr*, Vol. 3, p. 69 (D. Gutas).
18. De Blois, 1997, pp. 184–5, n. 96.
19. Following de Blois, 1997, the titles would seem to identify Maysarī's dedicatee as Abu 'l-Hasan Muhammad b. Ibrāhīm b. Sīmjūr, Samanid governor of Khurasan (on him, see Bosworth, 1996, p. 175).

general education at least at the level of courtly society. Maysarī gives a brief account of therapeutics, first of localized diseases in the conventional order from the crown of the head to the sole of the foot, then of generalized affections, such as fevers, and he concludes his work with a summary of diagnosis by uroscopy and taking the pulse. Like many of his fellow medical authors, Maysarī shares the exalted view of his discipline as a science on a par with *fiqh* (jurisprudence) and fashions a descent from a chain of illustrious intellectual forebears for himself. The most recent among them, and the only one from the Islamic period, is Abū Bakr al-Rāzī; however, for reasons of self-promotion, Maysarī may well have concealed his proximate source or sources.

The other two texts, while undated, can also safely be assigned to the last decades of the tenth century. By far the most substantial of the three works is Abū Bakr al-Akhawaynī's the *Hidāyat al-mutaᶜallimīn fi 'l-tibb* [Learners' Guidance to Medicine], the earliest medical pandects in Persian prose. In contrast to Maysarī's *Dānish-nāma*, al-Akhawaynī's book did not owe its existence to the conventions or demands of a court; apparently in Bukhara or nearby, the author composed it out of familial and wider professional concern for a son of his and other younger adepts. In 182 unnumbered chapters he presents a complete course of physiology, anatomy, therapeutics (in the received order *a capite*, including gynaecological diseases, and followed by dermatological, orthopaedic and other non-localized disorders), hygiene, and diagnosis by uroscopy and the pulse.[20] Other than Maysarī, al-Akhawaynī openly acknowledges his debt to his teacher, Abu 'l-Qāsim Tāhir b. Muhammad b. Ibrāhīm Maqāniᶜī; through Maqāniᶜī (who was a student of al-Rāzī's), al-Akhawaynī, in turn, is affiliated to the great master himself. It would also seem clear that al-Rāzī was al-Akhawaynī's proximate source for quotations from earlier authorities. Al-Akhawaynī's use of written materials needs further examination, however. His teacher Maqāniᶜī, from whom he acquired a sense of responsibility in medical practice, does not appear to have left written records. Combining a solid grounding in theory with a clear practical orientation, the *Hidāyat al-mutaᶜallimīn* is vivid testimony to the high level of school medicine in eastern Iran two generations after al-Rāzī; it is none the inferior for being written in Persian. This fact also points to the emergence of an audience interested in learning, but unable or unwilling to acquire Arabic first.

The third incunabulum of Persian medicine, the *Kitāb al-Abniya ᶜan haqā'iq al-adwiya* [Book of the Foundations Concerning the True Essence of Drugs and Medicines],[21] covers, as the title indicates, an indispensable ancillary subject, pharmacology. Its author, Abū Mansūr Muwaffaq Harawī, is, just

20. In the printed edition (ed. Jalāl Malīnī, Mashhad, 1344 /1965), the text comprises 798 pages, with an average of 16 lines on each page.

21. See *EIr*, Vol. 1, pp. 336–7, 'Abū Manṣūr Haravī' (L. Richter-Bernburg); Sezgin, 1970, p. 201, 'Śrībhārgavadatta'.

like his contemporaries Maysarī and al-Akhawaynī, unknown except from the manuscript transmission of his book.[22] Regrettably, only the approximate date of composition, *c.* 980–90, can be inferred on the basis of internal evidence. Harawī's work comprises, in the order of the Arabic alphabet and by Arabic lemmata, 584 articles on simple drugs; notwithstanding the author's manifest dependence on Arabic literary models, his uniquely eastern Iranian outlook expresses itself in fulsome praise for Indian *materia medica* and a small number of quotations from (contemporary or near-contemporary?) Indian authorities such as 'Srīfargavadat' (Śrībhārgavadatta) not to be encountered elsewhere.

In their time and place, the three authors just discussed stand out for their use of Persian. As for the intrinsic quality of their work, they easily compare with their Arabic-writing contemporaries, thus documenting that, at least at the highest level of medical learning, equality had been achieved between writers of Persian and of Arabic.

Of authors writing in Arabic in the medical field, special mention must be made of al-Husayn b. Ibrāhīm al-Nātilī (*fl. c.* 985–90),[23] Abū Mansūr al-Hasan b. Nūh al-Qumrī (*fl. c.* 995–1000)[24] and Abū Sahl ʿĪsā b. Yahyā al-Masīhī (970–1011)[25] as representatives of the flourishing medical learning of their time; in terms of social and professional standing, however, they cannot, as members of a court-oriented élite, be taken as representative of the medical profession at large. Al-Nātilī's edition of the Arabic Dioscorides, however meagre his revisions of Hunayn-Istifān's version and however crude the accompanying illustrations may be, testifies to the continuing challenge which this authority of Greek pharmacognosy was felt to pose to comprehensible translation. Al-Qumrī and al-Masīhī each composed as major works a voluminous encyclopedia, entitled respectively the *Kitāb al-Ghinā wa 'l-munā* [Book of Self-sufficiency and Wish-fulfilment] and *al-Kutub al-mi'a* [The Hundred Books]. In this genre of writing, the content is not subject to great material variation, given the general uniformity of the Galenic tradition. However, authors do differ in their attitude to astrology and other occult disciplines; in openness to 'clinical' experience; in adherence to religious precepts in case of conflict with medical tenets; in familiarity with the received authorities of the

22. The unique extant copy is deservedly famous, both on account of the person of its transcriber and as the oldest New Persian manuscript extant; the poet-lexicographer ʿAlī b. Ahmad Asadī Tūsī completed and dated it in Shawwāl 447/December 1055: see *EIr*, Vol. 2, p. 699, 'Asadī Ṭūsī' (Dj. Khaleghi-Motlagh); de Blois, 1997, pp. 83–90, n. 37.
23. Gutas, 1988, p. 24, n. 9, leaving open the disputed question of the identity of this Nātilī and Ibn Sīnā's teacher, Abū ʿAbdallāh al-Nātilī; Ullmann, 1970, pp. 152, n. 6, 260–1; Sezgin, 1970, p. 315.
24. Ullmann, 1970, pp. 147, 236, 320; Sezgin, 1970, p. 319.
25. *GAP*, Vol. 3, p. 52 (G. Endress) and index; *EI*², Vol. 6, pp. 726–7, 'al-Masīḥī' (A. Dietrich); Ulllmann, 1970, p. 151; Sezgin, 1970, pp. 326–7.

discipline; and formally, in their approach to the presentation of their subject. They may opt for a mosaic structure of attributed quotations or prefer to recast their gleanings into a continuous text of their own.

Regardless of their apparent conventionality, extant texts deserve far closer attention than most of them have so far received. Future study will have to assess, for example, whether or not al-Qumrī's and al-Masīḥī's minor works offer more stimulating answers to the queries of the contemporary student of medical history than their extensive synopses. Mention of a few titles will have to suffice here, such as al-Qumrī's *Kitāb al-Tanwīr fī 'l-mustalaḥāt al-tibbiyya* [Book of Enlightenment on Medical Terminology] and al-Masīḥī's *Kitāb Iẓhār ḥikmat Allāh taʿālā fī khalq al-insān* [Book of the Demonstration of God the Exalted's Wisdom in the Creation of Man] as well as his two short tracts on smallpox and the plague.[26] Al-Masīḥī was active both at the Samanid court in Bukhara and at that of the Ma'mūnid Khwarazm Shahs in Gurganj. Comparable to al-Rāzī before him and to his own younger contemporary Ibn Sīnā, al-Masīḥī represents the physician-philosopher of classical and Islamic tradition. From the point of view of religious history, it is also of interest that he was descended from Iranian Christians and held, albeit discreetly, to his faith.

While al-Qumrī and al-Masīḥī attest to learning and science in late tenth-century Transoxania, they do no more than highlight the region's diverse cultural and intellectual activities in this period. In a culture which laid great store by written documents, whether scripture or texts of human authorship, well-appointed libraries occupied a crucial position as storehouses of the fruits of intellectual productivity past and present. At this time, the Samanid court at Bukhara could boast a splendid library; by happy coincidence, information on it survives from the pen of one of the great minds in history who grew up and received his education there, Abū ʿAlī al-Ḥusayn b. ʿAbd Allāh Ibn Sīnā.[27] This is not the place to expand either on his life or on his philosophy beyond what is indispensable for an understanding of his attitude to medicine and of his medical writings. His self-image as expressed in his 'autobiography' and the scope of his philosophical works, first and foremost, his *Kitāb al-Shifā'* [Book of Healing], clearly show that Ibn Sīnā saw himself as a second Aristotle, reformulating, wherever necessary, clarifying and re-ordering 'the First Teacher's' thought; like him, Ibn Sīnā's objective was to devise a unified system of philosophy which incorporated every particular discipline and assigned to it its logical place.[28]

26. See on these, note 25 above.
27. Of the extensive bibliography for Ibn Sīnā, in addition to Gutas, whose focus, however, is philosophical, see *EncArLit*, Vol. 1, pp. 373 et seq., 'Ibn Sīnā' (H. Landolt); *GAP*, Vol. 3, p. 295 (index), 'Ibn Sīnā'; Isaacs and Gómez, 1990, esp. pp. 356–8, 389–404; *EIr*, Vol. 3, pp. 66–110, 'Avicenna' (M. Mahdi et al.).
28. See Gutas, 1988, esp. pp. 194–8, 286–96, and *passim*.

In this scheme, medicine occupied a relatively inferior position; unlike geometry, it could never aspire to universality and deductive incontrovertibility since it attained its objectives by application to contingent, individual cases only. From Ibn Sīnā's point of view, not only was medicine as a science 'not difficult', but because of its inferior systematic rank, medicine's supreme authority, Galen (129–209), had to cede to Aristotle as well. Truth being just as monarchical and exclusive in the realm of human inquiry and knowledge as it was in religion, disagreements between Aristotle and Galen were impossible to sustain; either Galen had to be proven wrong outright, or if the weight of his empirical evidence, especially in physiology and anatomy, did not make that feasible, a graduated system of truths had to be devised in order to safeguard Aristotle's overall authority in natural philosophy while conceding, in the 'particular' field of medicine, the validity of Galen's doctrine. Appropriately enough, Ibn Sīnā presents his arguments in full detail in the zoology section of his *Shifā'*,[29] his philosophical *summa*, and not in his medical encyclopedia, the *Qānūn*.[30]

With *al-Qānūn fi 'l-tibb* [The Canon of Medicine], or in Gerard of Cremona's Latin version, *Canon medicinae*,[31] Ibn Sīnā followed in the footsteps of authors such as Ibn Sarābiyūn (Serapion), al-Rāzī, ᶜAli b. al-ᶜAbbās al-Majūsī, Abū Sahl al-Masīhī and others in undertaking to compress medical knowledge into one all-encompassing book. From the medical viewpoint, Ibn Sīnā's *Canon* is by no means inherently superior to his predecessors' productions; however, whether for its philosophically informed persuasiveness and clarity of presentation, or perhaps for its deference to religious precepts, or a combination of both factors, it was to overshadow all earlier works and to dominate medical learning for centuries to come, within Islam as well as without. The five 'books' into which the *Canon* is divided deal with: (a) general principles (*kulliyyāt*): definition of medicine; physiology; anatomy; nosology, aetiology, semiology; preconditions of health, disease and death; principles of therapy; (b) simple drugs (in the order of the North Semitic [*abjad*] alphabet); (c) particular diseases *a capite* and skin disorders; (d) non-localized affections: fevers, tumours and ulcers, wounds, fractures, dislocations; poisons; cosmetics; and (e) compound drugs by genera and by indication. One parameter of the impact which the *Canon* had on subsequent generations is the number of epitomes and commentaries which carry the reference to it in their very titles and of extensive textual borrowings in ostensibly independent works. From outside the medical profession, weighty testimony is provided in the fourth

29. See *EIr*, Vol. 3, 'Avicenna', esp. pp. 94b–97b (B. Musallam).
30. Richter-Bernburg, 1996, esp. pp. 95–6, nos. 10, 13.
31. On the reception of Ibn Sīnā's medical works in medieval Europe, see *EIr*, Vol. 3, pp. 107–10 (U. Weisser).

discourse of Nizāmī ʿArūdī Samarqandī's *Chahār maqāla* [The Four Discourses] (1155); for him, the *Canon* simply contains all there is to know in medicine.

The *Canon* being an intellectually demanding and voluminous reference work, and expensive to acquire, Ibn Sīnā met the practitioners' and interested lay readership's needs with several shorter monographs, in prose as well as mnemonic verse;[32] among the best-known of them are a handy vade-mecum, the *Urjūza fī 'l-tibb* [Versification in Rajaz Metre on Medicine] and a *Maqāla fī ahkām al-adwiya al-qalbiyya* [Discourse on the Principles of Cardiac Medicines].[33] The latter's popularity partly derived from the fact that emotional and mental states were commonly thought of as organically manifested, either as cause or effect, by the heart; thus Ibn Sīnā's treatise also covered the field of what today would be called psychopharmacology. Consideration for one of his princely patrons, the Kākūyid ʿAlā' al-Dawla of Isfahan (r. before 1008–41), also led him to compose introductory and practice-oriented works in the vernacular, i.e. in Persian; here, medicine is represented by his treatise on phlebotomy, the *Andar dānish-i rag* [On Knowledge of Veins].[34]

Abū Rayhān Muhammad b. Ahmad al-Bīrūnī (973–1048), Ibn Sīnā's older contemporary and scientific correspondent, may be better known for his brilliant work in the mathematical sciences and in intellectual and cultural history – not to mention the breadth of his intellectual horizon – than for his contributions to the medical disciplines.[35] However, his two treatises pertaining to health sciences, on mineralogy and on *materia medica*, assure him of a prominent place in medical history as well. Political vicissitudes compelled him to leave his native Khwarazm for the Samanid capital Bukhara, the dominions of Qābūs b. Wushmgīr, and eventually, for the court of Mahmūd b. Sebüktegin and his successors at Ghazna. It was there that he wrote his *Kitāb al-Jamāhir fī maʿrifat al-jawāhir* [Comprehensive Book on the Knowledge of Precious Minerals] and, late in life, the *Kitāb al-Saydana fī 'l-tibb* [Book of Pharmacognosy in Medicine].[36] Both treatises exhibit some of al-Bīrūnī's salient qualities, his command of existing scholarship in the given field and his far-reaching interests, which included the 'humanistic' aspects of the two areas of study as well as the more narrowly scientific subject-matter. Yet in the field of *materia medica*, it may be said that he attained, but did not transcend, the limits of book-based learning.

32. Ullmann, 1970, p. 156.
33. Ibid., pp. 154–6.
34. *EIr*, Vol. 3, pp. 99–100 (M. Achena).
35. *GAP*, Vol. 3, esp. pp. 133–5, 142–3, and index, 'al-Bīrūnī'; Saliba, 1990, pp. 405–23; *EIr*, Vol. 4, 'al-Bīrūnī, Abū Rayḥān', esp. pp. 274–6 (C. E. Bosworth).
36. Saliba, 1990, esp. pp. 418–21; *EIr*, Vol. 4, pp. 281–2 (G. C. Anawati).

The continuing elaboration and 'Islamic naturalization' of Galenism; the consolidation of Arabic-Persian bilingualism (1050–1220)

This period, roughly from the consolidation of Seljuq power to the Mongol invasion of Central Asia, saw undiminished interest in medical learning and writing. However, the towering figures of the preceding period cast long shadows; as indicated above, educated society at large often saw Ibn Sīnā's *Canon* as the embodiment of medical learning. Numerous medical authors abridged, recast and otherwise drew on it and other earlier works; commentaries and specialized monographs became quite popular. It goes without saying that such developments affected the entire Islamic world; however, it will be seen that long-distance intellectual exchange, especially from the 'periphery' to the 'centre', was by no means guaranteed. Another process occurring in this period, and one which was not restricted to any particular region of the Islamic world, was what A. I. Sabra has termed the 'Islamic naturalization' of science;[37] naturally, academic medicine continued to be Galenic, but it lost its more obviously foreign features, and the massive medical tradition of the preceding Islamic centuries asserted itself. Specifically, in the region with which we are concerned, medical scholarship became increasingly bilingual, Persian maintaining and strengthening the position it had first won in the tenth century.

The earliest author we shall mention is Abu 'l-Qāsim ᶜAbd al-Rahmān, called Ibn Abī Sādiq al-Naysābūrī (d. after 1068), who won fame in Khurasan, at least, as the 'Second Hippocrates'.[38] If the Arabic biobibliographical sources call him a disciple of Ibn Sīnā, they may refer to literary dependence rather than to personal acquaintance; nearly every medical author by that time bore a heavy debt to Ibn Sīnā. Contrary to what has been remarked above, Ibn Abī Sādiq's attention was focused on Hippocrates and Galen and only secondarily on Hunayn b. Is'hāq, the early ᶜAbbasid mediator of Greek science to the Arabs, and al-Rāzī; he apparently intended to bypass the syntheses of the recent past and to renew medicine by re-presenting core classics through his elucidations. A report by the biographer of medical men, Ibn Abī Usaybiᶜa, would seem to suggest that it took close to two centuries for his Arabic works to reach Damascus.

Two generations after Ibn Abī Sādiq, Muhammad b. ᶜAlī al-Īlāqī (d. 1141) similarly passed as Ibn Sīnā's disciple, on the basis of his abridgements of sections of the *Canon*. His major distinction may have been the grievous nature of his death, since he was killed in the battle of the Qatwan steppe in 1141

37. Sabra, 1987, pp. 223–43, reprinted in Sabra, 1994, and also in F. J. Ragep and S. P. Ragep, 1996, pp. 3–30.

38. *EIr*, Vol. 7, p. 663, 'Ebn Abī Ṣādeq' (L. Richter-Bernburg); Ullmann, 1970, p. 160.

when the Seljuq Sultan Sanjar suffered a crushing defeat at the hands of the Kara Khitay (see Volume IV, Part One, p. 165).[39] Another two generations later, the philosopher-theologian Fakhr al-Dīn Muhammad b. ᶜUmar al-Rāzī (1148–1209), the object both of adulation and of vitriolic attack, paid his respects to Ibn Sīnā, the medical scholar as well as the philosopher, and compiled a commentary on the *Canon* in addition to a handbook on therapeutics.[40]

The tradition of study and productive engagement of the *Canon* continued unabated for centuries. In our period, Najīb al-Dīn Abū Hāmid Muhammad b. ᶜAlī al-Samarqandī (d. 1222) was one of the most influential adapters of Ibn Sīnā's work; yet in his book *al-Asbāb wa 'l-ᶜalāmāt* [Causes and Signs], which enjoyed wide circulation and was in turn repeatedly made the basis of commentaries and abridgements,[41] al-Samarqandī also relies on the other great authors of the tenth century, al-Rāzī, al-Majūsī and Ahmad b. Muhammad al-Tabarī, whereas in his shorter treatises on *materia medica* and pharmacology, including cardiological therapy, he takes Ibn Sīnā as his model. In general, his writings were intended to serve the needs of practitioners.

Concern for practical utility also expressed itself in handbooks on pharmacology; possibly in 1194, Badr al-Dīn Muhammad b. Bahrām al-Qalānisī compiled his voluminous *al-Aqrabādhīn* [Dispensatory].[42] He introduces his material, compound drugs arranged by mode of preparation, with a complete survey of pharmaceutical methods. Al-Qalānisī's quotations in his book attest to his wide reading in the field; besides Ibn Sīnā, a whole range of authors, of whom al-Bīrūnī is the latest datable one, is represented.

As indicated above, Persian maintained and strengthened its position as an idiom of learning and science in the period between Ibn Sīnā and the Mongol invasions. From this time onwards, Persian medical literature came to be dominated by the towering figure of Zayn al-Dīn Ismāᶜīl b. al-Husayn al-Jurjānī (*c.* 1042–1140?).[43] His medical writings, among which the *Dhakhīra-yi Khwārazmshāhī* [Repository of the Khwarazm Shah] takes pride of place, are vivid testimony to his multifarious scholarship as well as to his attention to professional and lay needs. They cover the entire range from a concise vademecum of preventive and curative medicine (*Khuffī-yi ᶜAlā'ī* [ᶜAlā''s Bootbook]) and a practitioner's handy reference (*Yādgār* [Memorandum]) to the advanced learner's textbook (*al-Aghrād al-tibbiyya* [Medical Pursuits]) and the complete

39. Brockelmann, 1937–49, Vol. 1, p. 485; Suppl., Vol. 1, p. 887.

40. *EI*², Vol. 2, pp. 751–5, 'Fakhr al-Dīn al-Rāzī' (G. C. Anawati); Brockelmann, 1937–49, Vol. 1, p. 457 (n. 82a); Suppl., Vol. 1, p. 824 (n. 82a), p. 924 (n. 34).

41. Ullmann, 1970, p. 170; Brockelmann, 1937–49, Vol. 1, p. 489; Suppl., Vol. 1, p. 895, n. 28.

42. Fellmann, 1986, pp. 1–2, on the dubious date as given in Brockelmann, 1937–49, Vol. 1, p. 489; Suppl., Vol. 1, p. 893, n. 23; and by Ullmann, 1970, pp. 307–8.

43. Richter-Bernburg, 1978, pp. 2–8; Storey, 1958–71, pp. 207–11, n. 361; Thierry de Crussol des Epesse, 1998, n. 872.

scholar's encyclopedic synthesis (the *Dhakhīra*). Most if not all of these Persian books of al-Jurjānī date to within a few years after his arrival at Khwarazm in 1110, when, as a septuagenarian, he entered the service at the court of the then Seljuq governor, the Khwarazm Shah Qutb al-Dīn Muhammad b. Anūshtegin (1097–1127).

However, al-Jurjānī also took took care to disseminate the fruits of his labour in Arabic,[44] the prestige language of learning, through original works and translations from Persian. Arabic, after all, was the writing medium of his teachers, especially Ibn Abī Sādiq, and the authorities whom he quotes; the only exception to this rule is the still shadowy Ahmad-i Farrukh, the author of the medical compendium, the *Kifāya* [Sufficiency].[45] It stands to reason that al-Jurjānī was heavily influenced by Ibn Sīnā, but in spite of at times extended literal quotations, his *Dhakhīra* cannot be dismissed merely as a Persian *Canon*; the author's reading includes, but is not limited to, the most important writers of the tenth and eleventh centuries. Al-Jurjānī's works in *hadīth*, ethics and anti-philosophical polemics, besides occasional comments in his medical treatises, betray his orthodox religious persuasion and thus illustrate the above-mentioned 'Islamic naturalization' of Hellenistic science, in this case, of Galenic medicine.

Contrary to chronological sequence, Ismāᶜīl al-Jurjānī has been given precedence here among Persian-writing medical authors on account of the breadth of his learning and of the subject-matter in his works. However, in one of the specialized, and most vital, sub-disciplines of medicine, ophthalmology, he was, as a Persian author, preceded by an older contemporary, Abū Rawh Muhammad b. Mansūr al-Jurjānī, called Zarrīndast, who in 1087 dedicated his *Nūr al-ᶜuyūn* [Light of the Eyes] to the Seljuq sultan Malik Shāh (1073–92);[46] following well-established precedent, for example that of Hunayn b. Is'hāq in his *Masā'il fī 'l-ᶜayn* [Questions on the Eye], Zarrīndast adopted the catechetic form. Given the lack of biographical information about the author, it may be rash to include him among Central Asian physicians merely on account of his attachment to the Seljuq court; a Seljuq preference for Persian may, however, be linked to their Central Asian background.

Still during the Seljuq period, most probably during the first half to the middle of the twelfth century, the Jewish physician Abū Saᶜd, called Zardgilīm, compiled as a practitioner's manual of theoretical medicine and therapeutics a *Mukhtasar andar ᶜilm-i tabīb* [Abridgement Concerning the Physician's Science].[47]

44. Richter-Bernburg, 1978, pp. 2–8; Ullmann, 1970, p. 161; Brockelmann, 1937–49, Vol. 1, p. 487; Suppl., Vol. 1, pp. 889–90, n. 15.
45. Richter-Bernburg, 1978, pp. 3, 189; Thierry de Crussol des Epesse, 1998, pp. 8, 14.
46. Richter-Bernburg, 1978, p. 1; Storey, 1958–71, p. 205, n. 359; Thierry de Crussol des Epesse, 1998, p. 14.
47. Storey, 1958–71, pp. 211–12, n. 362; Ullmann, 1970, p. 164.

Islamic civilization had taken over hospitals and dispensaries as charitable institutions from the older civilizations of the Fertile Crescent. Just as Rayy boasted a hospital during Abū Bakr al-Rāzī's lifetime, it may well be that similar establishments also existed in Samanid dominions from that time onwards, though we have no specific information. Of Ismāʿīl al-Jurjānī, who was the Khwarazm Shah's physician-in-ordinary, the sources relate that one of his charges was the court dispensary, which obviously served an important function in public health; after al-Jurjānī retired from his position, much concern was shown in the selection of a qualified successor.[48]

Finally, the position of medicine in the syllabus of élite education during the twelfth century is neatly attested by Niẓāmī ʿArūḍī Samarqandī's *Chahār maqāla*, composed for presentation at the Ghurid court in 1155. Here, medicine figures as one of the four disciplines which a ruler should have represented among his trusted servants. At the same time, the author provides his readers with a remarkably extensive medical bibliography, noteworthy not least for its combination of Arabic and Persian texts. Al-Akhawaynī, Ahmad-i Farrukh and Ismāʿīl al-Jurjānī are given their due along with their great Arabic-writing predecessors and contemporaries. Unfortunately, Niẓāmī ʿArūḍī does not give any hint as to which of the books in his list he himself has seen, and if so, where; thus the degree of realism in his impressive tableau is difficult to assess.

Commentaries, encyclopedias and inter-Asian exchanges (1220–1500)

The invasions of the Middle East by Chinggis Khan and his successors had long-lasting effects even on regions spared wholesale bloodshed and devastation. Mesopotamia, the erstwhile heart of the caliphate, became peripheral to the new centres which emerged either further west in Egypt and, eventually, in Asia Minor, or further east on the Iranian plateau and in Central Asia. Also, the ethnic composition of the Islamic world altered; successive waves of Turkic pastoralists were swept westwards by the upheavals, including into the Central Asian border provinces of the Iranian world. The process of Turkicization which had proceeded there since the tenth century was perceptibly accelerated. However, in literary terms, the injection of a sizeable Turkic segment into the potential Persian audience may have meant an increase in numbers of such a readership rather than a decrease. Certainly, scholarly writing flourished in Persian, as did translation from Arabic.

From the point of view of political history, the scant three centuries between Chinggis Khan and the establishment of Safavid power in Iran and of the Turkic Shaybanid dynasty in what was later to become Uzbekistan was

48. Richter-Bernburg, 1978, p. 3.

interrupted by Timur's bid for world domination (1370–1405) and the concomitant disturbances, which included forced migrations, deportations and resettlement of large segments of the population. As far as the history of medicine is concerned, however, such a division of the period would not seem to be justified. Profound changes had taken place in the wake of the Mongol expansion of the thirteenth century, and would also be brought about by the European discovery of the New World and the constituting of the Mughal empire in India. The facilitating of inter-Asian communication under the Mongols led to the importation of Chinese fine art and science into Il Khanid Iran. However limited the results of such exposure to Chinese learning may have been, cross-Asian exchanges as such were given an impetus during this period.

Literary production in Arabic never ceased in any region of the Islamic world; just as evident, though, was the fact that with the Mongols, Persian became the language of choice for writers in Iran and Central Asia. In medicine, the number of translations from Arabic into Persian increased and the range of subject-matter expanded steadily. Monographs were devoted to theoretical fields such as anatomy and to practice-oriented areas such as pharmacology and sexual medicine, and handbooks on general therapeutics continued to be compiled as a matter of course; some of the post-Mongol works came to acquire the status of classics in their own right. Older standard texts were repeatedly made the subject of commentaries, and it does not come as a surprise that neither Ibn Sīnā's *Canon* nor al-Jurjānī's *Dhakhīra* were emulated by efforts on a similar scale.

Once a semblance of order was re-established after the turmoil of the Mongol invasions, the circulation of books between Iran proper and the regions to its north-east probably continued during the thirteenth and fourteenth centuries; thus those medical works which were produced at the Il Khanid and subsequently at provincial courts must have become accessible in Central Asia as well. Titles which come to mind here include the *Ghiyāthiyya* [Book for Ghiyāth al-Dīn] by Najm al-Dīn Mahmūd b. Ilyās Shīrāzī; Mahmūd b. Muhammad Chaghmīnī's epitome of the *Qānūn*, the *Qānūnja* [Little Canon]; Zayn al-Dīn ᶜAlī b. al-Husayn al-Ansārī's *Ikhtiyārāt-i Badīʿī* [Selections for Badīᶜ al-Jamāl], a treatise on *materia medica* which was to gain wide circulation for centuries; his son Husayn, called Ibn Hājjī Zayn al-ᶜAttār's *Dastūr al-atibbā' ᶜan qawāᶜid al-hukamā'* [Instruction of the Physicians about the Principles of the Sages); and finally, two works by Mansūr b. Muhammad b. Ahmad, the medical pandects *Kifāya-yi Mujāhidiyya* [Sufficiency for Mujāhid al-Dīn] and the anatomical treatise *Tashrīh-i Mansūrī* [Mansūr's Anatomy], which commands interest especially for its anatomical illustrations.[49]

49. Richter-Bernburg, 1978, pp. 25 et seq., n. 17, 28–9, n. 19, 29–33, n. 20, 43–6, n. 31, 46–7, n. 32, 51–2, n. 38; Storey, 1958–71, pp. 220–3, n. 380.

While in the pre-Timurid period some authors can clearly be located either in the Il Khanid orbit or that of provincial courts in Fars, the dearth of biographical information about others does not permit us to situate them in Central Asia; these include Masᶜūd b. Muhammad al-Sijzī,[50] Fakhr al-Islām al-Arghandī al-Khurāsānī[51] and Shihāb al-Dīn b. ᶜAbd al-Karīm Nāgawrī.[52] Regrettably, it is not possible to determine the context of the dedication of an Arabic commentary on Hippocrates' *Aphorisms* to the Batu'id Khan Jalāl al-Dīn Jānī Beg Mahmūd (1342–57) of the Blue Horde; in particular, it is not known whether or not its author, Ahmad b. Muhammad b. Qāsim al-Kaylānī, was in the Khan's regular employment. Apparently it was only with the patronage of Timur and his successors that intellectual production in Transoxania and the adjacent regions regained momentum. The first title to be mentioned here is a compendium of medicine, the *Sharā'it-i jarrāhī* [Requirements of Surgery], for Shāh Rukh (1404–46);[53] contrary to its title, the discussion of surgical operations is limited to just the ninth of its ten discourses. Nevertheless, this discourse would seem to merit closer study, informed as it clearly is by the author's personal experience.

Timur's grandson Ulugh Beg (1394–1449), himself an erudite patron of scholarship, employed Burhān al-Dīn Nafīs b. ᶜIwād al-Kirmānī as physician-in-ordinary.[54] Al-Kirmānī's literary production, sc. commentaries in Arabic on four of the most widely circulated medical classics, was to gain lasting popularity in its own right; he selected *al-Asbāb wa 'l-ᶜalāmāt* by Najīb al-Dīn al-Samarqandī; *Mūjiz al-Qānūn* [Abridgement of the *Qānūn*] by Ibn al-Nafīs, Hippocrates' *Aphorisms* and Galen's *Kitāb al-ᶜIlal wa 'l-aᶜrād* [Book of Illnesses and Medical Conditions]. In the second half of the fifteenth century, a remarkable author is encountered at the Timurid court of Badakhshan; in addition to a chapter on human anatomy in his encyclopedia of natural sciences, the *Dānish-nāma-yi jahān* [Book of Knowledge of the World], Ghiyāth al-Dīn ᶜAlī b. ᶜAlī Amīrān al-Husaynī al-Isfahānī compiled a treatise on *materia medica* in tabular form.[55] Sultān Husayn Bayqara's (d. 1506) splendid court at Herat did not fail to attract medical scholarship either; to be mentioned here are ᶜAbd al-Razzāq b. ᶜAbd al-Karīm al-Kirmānī, who dedicated his *Shifā' al-asqām* [Cure of Diseases] to the courtier and literary figure Mīr ᶜAlīshīr Nawā'ī (d. 1501),[56] and Qutb Muhammad Tabīb, who presented a Persian version of

50. Author of an Arabic 'medical dictionary', the *Haqā'iq asrār al-tibb* [Truths behind the Secrets of Medicine], written before 1334 (Brockelmann, 1937–49, Suppl., Vol. 2, p. 299).
51. Storey, 1958–71, p. 220, n. 378 (dating conjectural).
52. Ibid., pp. 224–5, n. 383.
53. Richter-Bernburg, 1978, pp. 54–7, n. 41.
54. Ullmann, 1970, pp. 170, 173; Brockelmann, 1937–49, Suppl., Vol. 2, p. 299, n. 2.
55. Richter-Bernburg, 1978, pp. 58 et seq., n. 43; Storey, 1958–71, pp. 357–8, no. 595.
56. Storey, 1958–71, p. 230, n. 397.

Ibn al-Nafīs' *Mūjiz al-Qānūn* to his patron, the poet Niẓām al-Dīn Shaykh Aḥmad Suhaylī (d. 1501).[57]

Finally, literary productivity in medicine did not cease in Transoxania with the end of Timurid rule; Sulṭān ᶜAlī Khurāsānī Gunābādī dedicated a manual of therapeutics, the *Dastūr al-ᶜilāj* [Rules of Treatment], to Abū Saᶜīd Bahādur Khan, the Uzbek ruler of Samarkand (1530–3).

Veterinary science (750–1500)

From the distant pre-Islamic past onwards, horsemanship and falconry had a distinguished history in Iran, Transoxania and the adjacent regions; thus it does not come as a surprise that the practice and terminology of falconry in Islam were largely borrowed from this tradition and that certain Central Asian varieties of hunting birds and breeds of horses were much sought after in later periods as well.[58] However, if *bāz* (falcon) and *bāzdārī* (Arabized as *bayzara*, falconry) gained early currency, the corresponding terms of horsemanship were derived from Greek and Arabic, such as *bayṭār* and *bayṭara* for the veterinary specialist (originally just the hippiatrist) and his art, and *furūsiyya* for horsemanship and hippology as such. The apparent time-lag of Persian writing in these fields as against Arabic may not merely have resulted from the predominant cultural unity of the Islamic world in the pre-Mongol period but may also indicate the strength of a living tradition passed on by apprenticeship rather than by theoretical communication in writing. In principle, the tradition of theoretical reflection and book learning was much less strong in the veterinary arts than in medicine proper. Yet at the level of scholarship, both medical disciplines obviously shared the common basis of Galenic humoral physiology, even though the exact relationship between professing the dominant doctrines of 'school' medicine and practical adherence to time-tested veterinary cures remains to be investigated.

The first major Islamic author in this field, Muḥammad b. Yaᶜqūb Ibn Akhī Khizām al-Khuttalī (*fl. c.* 865?),[59] has a Central Asian *nisba* (gentilic

57. Richter-Bernburg, 1978, pp. 61–2, n. 45.
58. On horsemanship generally, see *EIr*, Vol. 2, pp. 731–7, 'Asb. iii, In Islamic Times', and 'Asb. iv, In Afghanistan' (A. S. Gordfaramarzi and C. E. Bosworth, resp.) and pp. 724–31, 'Asb. i–ii, On Horsemanship during Pre-Islamic Centuries' (A. Sh. Shahbazi and F. Thordarson, resp.); cf. *EI*², Vol. 1, p. 1149, 'Bayṭār' (M. Plessner).
59. Ullmann, 1970, pp. 219–20; Storey, 1958–71, pp. 396–7, n. 664. For earlier works in the field as they were (often pseudepigraphically) transmitted in Arabic and later also in Persian, see Ullmann, 1970, pp. 217 et seq., and Storey, 1958–71, p. 394, n. 662. The Persian versions of an allegedly Aristotelian 'book of horses' have not yet been located and dated; see Keshavarz, 1986, esp. pp. 353–4, n. 191.

name),[60] but is reported to have served as an equerry at the ᶜAbbasid court. His book, the *Kitāb al-Khayl wa 'l-baytara* [Book of Horses and Hippiatry] (with variants), became a standard reference text, seen in its ample direct and indirect transmission. Its hippiatric pedigree is Greek, and secondarily, perhaps Sanskrit,[61] whereas for the practice of equitation itself it may well be indebted to Iranian and Turkic in addition to Arabian traditions. Ibn Akhi Khizām al-Khuttalī's hippiatric ambition expresses itself in the confident claim that his *Kitāb Hīlat al-bur'* [Method of Healing] enjoys a position similar to Galen's *Methodus medendi* in human medicine. The two extant Persian versions of his work are dated to 1330 only; similar problems are raised by the limited number of Persian hippiatric monographs datable to the period before 1500.[62]

In tracing the history of hippiatry (and by extension, veterinary art), which was of concern to a number of professions, it is not possible to ignore the evidence of texts from such fields as statecraft (including 'Mirrors for Princes'), the arts of war, agriculture and encylopedias. Thus in his *Qābūs-nāma* [Book for Qābūs] (see above, Chapter 4, p. 140), Kay Kāwūs b. Iskandar gives a detailed list of equine defects and diseases[63] and Fakhr-i Mudabbir Mubārak Shāh includes hippiatry in his manual of the arts of government at peace and war, the *Ādāb al-harb wa 'l-shajāᶜa* [The Correct Usages of War and Bravery].[64] While the two authors' connection with Central Asian lands was at best tenuous, their works may well have circulated there as well; the first was certainly to achieve at least three Turkish translations.

The vital importance horses had in civilian and military life is further mirrored in the relevant sections of various large encyclopedias. Fakhr al-Dīn al-Rāzī did not neglect the subject in his *Jāmiᶜ al-ᶜulūm* [Comprehensive Work on the Sciences], the work he dedicated to the Khwarazm Shah Tekish (1172–1200), nor did Muhammad b. Mahmūd al-Āmulī (*fl. c.* 1315–50) in his widely known encyclopedia, the *Nafā'is al-funūn fī ᶜarā'is al-ᶜuyūn* [Precious Arts Concerning the Desires of the Eyes].

Persian literature on falconry differs notably from that on horsemanship.[65] For one thing, it expressly relies on translations from pre-Islamic Persian sources

60. Admittedly, there are many variants for this: see Storey, 1958–71, p. 396, n. 664.
61. He borrowed heavily from Theomnestus of Magnesia (*fl.* fourth century A.D.?) and also named an Indian king 'Jnh' as his source (Ullmann, 1970, p. 220).
62. See *EIr*, Vol. 2, esp. p. 736, 'Asb. iii' (ᶜA. Soltānī Gordfarāmarzī); Storey, 1958–71, pp. 397, 400 et seq.; Keshavarz, 1986, p. 357–8, n. 195.
63. Levy, 1951, pp. 114–16.
64. *EIr*, Vol. 1, p. 445, 'Ādāb al-ḥarb' (C. E. Bosworth); Vol. 2, p. 737a, 'Asb. iv' (C. E. Bosworth).
65. *EIr*, Vol. 4, pp. 17–20, 53–8, 65–6, 'Bāz', 'Bāzdārī', 'Bāz-nāma' (H. Aᶜlam, M.-T. Daneshpazhuh); Storey, 1958–71, pp. 402 et seq., 409–10; Keshavarz, 1986, pp. 348–51. See for the Arab regions, *EI*², Vol. 1, pp. 1152–5, 'Bayzara' (F. Viré); Möller, 1965; Ullmann, 1972, pp. 43–50.

and at times on Central Asian Turkish traditions; also, it is attested from a considerably earlier period. The first extant treatise is Abu 'l-Hasan ᶜAli b. Ahmad Nasawī's *Bāz-nāma* [Book of Falcons];[66] the author, a native of Rayy, may have resided in Kākūyid territory in central Iran, probably in the later eleventh century. As both an experienced falconer and a scholar, he gives much attention to the hygiene and health of hunting birds. His expertise, he asserts, is based on a thorough study of older authorities, among whom he mentions the Sasanians, Sogdians, Samanids, (contemporary?) Zoroastrians, Turks and the people of Iraq and Khurasan; regardless of a precise assessment of these claims, the privileged position of eastern Iran and Transoxania in his list stands out at first glance. It is possible that the author of the *Sayd-nāma-yi Malikshāhī* [Hunting Book for Malik Shāh], Muhammad b. Qalchak Nizāmī, represented those Irano-Turanian traditions in his own person. Nearly three centuries later, his book was revised and expanded by ᶜAli b. Mansūr Khwāfi, and an abridgement of his version was in turn made soon afterwards. In 1455, towards the end of our period and clearly in the region, the encyclopedist Ghiyāth al-Dīn ᶜAli b. ᶜAli-Amīrān Isfahānī also compiled a *Bāz-nāma*.

Conclusion

Neither in the veterinary arts nor in medicine did the establishment (around the turn of the sixteenth century) of Safavid power in Iran, of the Shaybanid dynasty in Central Asia and of the Mughals in the Indian subcontinent, mark a break in literary activity. Yet as well as the appearance of syphilis,[67] and the stimulus to exchanges between Galenic and Ayurvedic medicine under the Mughals,[68] political, social and religious changes in the period presented medical challenges which, at least in retrospect, appear to have been new at the time. The question of their actual effect on the theory and practice of medicine, however, goes beyond the scope of this section.

66. *EIr*, Vol. 4, esp. pp. 53–4, 'Bāzdāri'.
67. In Persian, *ābala-yi Farang* or *ātishak* (Frankish pox or 'little fire', 'inflammation'); see Richter-Bernburg, 1978, pp. 60–5, 104–8, ns. 44, 45, 99.
68. See Storey, 1958–71, pp. 229, 231 et seq., 249, ns. 394, 401, 402, 424.

Part Two

MEDICINE AND PHARMACOLOGY: CHINESE, INDIAN, TIBETAN AND GRAECO-ARAB INFLUENCES

(H. M. Said)

Greek thought entered the Arab world through the school of Jundishapur in south-western Iran. We come across references to Greek authors such as Actius of Amida, Theophrastus, Paulus Aegineta, Rufus of Ephesus, Pythagoras, Plato, Philomenus of Alexandria, Dioscorides, Hippocrates, Galen and others in al-Bīrūnī's *Kitāb al-Saydana fi 'l-tibb*, an example of how those ideas spread through eastern Iran towards Central Asia.

Chinese influence on Islamic medicine

Two great Muslim scholars of the natural sciences, Ibn al-Baytar (1197–1248) and Ibn Sīnā, discuss in their works the vegetable drugs that have their origin in China. Of Muslim scholars, Ibn al-Baytar is probably the best known among the botanists (the other being Muhammad al-Ghāfiqī, *fl.* twelfth century). It is certain that he never visited China, but in his *Kitāb al-Jāmi*ᶜ *li-mufradāt al-adwiya wa'l-aghdhiya* [Collection of Simple Drugs and Foodstuffs] he describes many of the Chinese drugs which later became part of the Graeco-Arab pharmacopoeia. According to Ibn al-Baytar, herbs like *bish* (*Aconitum* Sp.) and *rēwand chīnī* (*Rheum emodi, Ta-huang*) were originally native to China. *Dar chīnī* (*Cinnamomum zeylanicum*), *chūb chīnī* (*Smilax China*) and *mamīrān chīnī* (*Coptis teeta*) are some other valuable drugs named after their area of origin and existence. Cinnamon (bark), or *dar chīnī*, is not only regarded as a valuable article in Graeco-Arab medicine but in the Chinese system also; being aromatic, it has warm and dry faculties and possesses carminative, astringent and stomachic properties and is prescribed for bowel complaints.

Ibn Sīnā mentions a Chinese compound drug containing various herbal ingredients, named *suk*, the active ingredient of which is regarded as *aumlai* (in Chinese) or *amlaj* (in Arabic); a useful hepatoprotective agent, it is also effective against palpitation. The Graeco-Arab physicians' awareness of Central Asian and Chinese drugs can also be traced historically through the assertion that Arab medieval scholars knew other Chinese plants little esteemed by Chinese themselves, such as *anba* (*Mangifera indica*), the Indian mango. It was found around the thirteenth century in China, and Ibn Baytar mentions in his book that a small number of mango trees were found in some parts of southern China. We also come across several examples where indigenous Chinese drugs

are introduced to other areas and other systems particular to the Graeco-Arab system, for example, *ma-huang* (*Ephedra vulgaris*), camphor (*Camphora officinalis*), pomegranate (*Punica granatum*), angelica or *tang kuei* (*Angelica sinensis*), hemp (*Cannabis sativa*), calamus (*Acorus calamus*), castor oil plant (*Ricinus communis*) and several others.[69]

Indian influence on Islamic medicine

India and Indian commodities were early known to the Arabs via Jundishapur, where Persian and Arab Muslim medical men came in direct contact with both Greek theories and the Indian views. The expansion of the Arab empire towards the east, the conquest of Sind and the Arab settlement there, brought the Arabs into contact with Indian culture and potentially with the ancient (Hindu) Ayurvedic medicine. The Arabs appreciated Indian advances in the field of medicine and mathematics, as stressed, for example, by al-Jāhiz of Basra (d. 869), by the historian and geographer al-Yaᶜqūbī (d. 897) and by Abū Maᶜshar al-Balkhī (d. 885).

During the ᶜAbbasid period, several Indian medical as well non-medical manuscripts were procured and translated into Arabic, and it is said that Indian medical men were invited to the caliphal court, so that some of the Muslim physicians became familiar with the Indian system of medicine and included discussion of it in their own works. The first important Arabic medical treatise to discuss the Indian system of medicine in detail is the *Firdaws al-hikma* of ᶜAlī b. Sahl Rabbān al-Tabarī (see on this, above, p. 301). It deals not only with medical topics but also with philosophy, meteorology, zoology and astronomy. It is a fair-sized book divided into 7 parts, 30 discourses and 360 chapters.

Part VII, *maqāla* (discourse) IV, deals in 36 chapters with Indian medicine based upon Charaka, Susruta, Nidana and Astanga Hridaya. The topics covered are as follows: genesis and purpose of medical science; classification of this science; qualifications essential for a medical student; efficient treatment and the desirability of not beginning the treatment in haste; origin of mankind and the birth of animals; the embryo and its different parts; function of the humours; measures to be taken for the preservation of health and their advantages; the superfluous matters of the body, and the harm caused by suppressing them; the harm caused by taking different things in excess; different tastes and what the physician should know about them; different kinds of water and their properties; food and the arrangement of different courses; what should be taken with different kinds of wine; wine and how it should be drunk and persons who should abstain from it; the milk of different animals and its properties;

69. Said, 1991, pp. 9–16.

measures to be taken in the different seasons of the year for keeping healthy; on universal morals (based on the work of the Indian physicians); general causes of diseases; different kinds of diseases; history of the patient; particular causes of diseases; what is caused by the preponderance of each humour; methods of treatment; hiccoughs; coughs and their treatment; thirst; symptoms of relaxation of the bowels and of consumption; fever and its symptoms; treatment of fevers; blood-letting and when it should not be resorted to; symptoms of convalescence and of death; evil spirits; purgatives and emetics; medicines for diseases of the uterus and cleaning of the face; and compound medicines and their preparation.

It seems that al-Tabarī may have studied Indian medicine thoroughly, as seen, for example, in his fourth chapter, concerning efficient treatment and the desirability of not beginning the treatment in haste. While some Islamic physicians became familiar with the Indian system of medicine through their own efforts, many could not follow it because it differed so much from the Greek system upon which their own medicine was substantially based. Al-Bīrūnī, in his *Kitāb al-Saydana*, which he composed towards the end of his life, writes, however, about some physicians' contact with Indian methods. Thus he mentions the class of Indian physicians called 'Poison-healers', and tells how a leading citizen of Gardiz in eastern Afghanistan was cured of haemorrhoids (after treatment by conventional means had proved ineffective) by an Indian physician's scarifying the sufferer's back and rubbing in aconite, and then administering it orally.

Traditional Tibetan medicine

For over 2,000 years, the Lama physicians of Tibet have been practising the Tibetan system which states that the source of all medical knowledge comes from the Buddha. It is an ancient art comprising a complex system of diagnostic and therapeutic means, a psychosomatic model based on a doctrine of construction, as well as on cultural assumptions. Whereas the traditional Chinese medical system is based on the dualism of Yin and Yang, the Tibetan one invokes a tripartite system of analysis. The constituents of the body may exist on their own or as combinations and are loosely translated as wind, bile and phlegm; these are similar in constitution to the *vaya*, *pitta* and *kapha* of Ayurveda and the four humours of the Graeco-Arabic medical tradition. Tibetan compound drugs are, like the Graeco-Arabic ones, primarily herbal. These are the common simple drugs of herbal origin easily available in Central Asia in wild as well as in cultivated states. The system is also known as the Amchi (Tibetan) system of medicine and is one of the major traditional systems of the region.

It is thus clear that herbal therapy forms the very basis of treatment in all the major indigenous systems of medicine established in ancient times in

Central Asia, whether Greek, Chinese, Mongolian, Tibetan, Ayurvedic or Graeco-Arabic. In many cases, their ingredients are being tested today in sophisticated laboratories the world over, in the hope of evaluating their therapeutic effects.

Graeco-Arab medicine in the Indo-Pakistan subcontinent

The Graeco-Arab medical system came to India with the Muslims, but was modified and enriched by the addition of Ayurvedic lore. The ancient Ayurvedic medicine, which had survived throughout the centuries, was by now undergoing change, with only faint traces of the works and methods of ancient masters visible. Muslims not only revived the works of Charak, Susruta, Wagbhat, Sarangdhar and other Ayurvedic authorities by borrowing suitable material from their works but also incorporated this material into their own system.

An attractive but wholly uncorroborated story in the Arabic sources states that the caliph Hārūn al-Rashīd once summoned an Indian physician called Manka who cured the caliph of his ailment. This Manka, who is said to have had a profound knowledge of Indian, Persian and Arabic languages, was attached to the hospital founded by the Barmakids and translated several books from Sanskrit into Persian and Arabic. Ibn Dhan was another experienced Indian physician said to have been active at Baghdad at the same time, heading the hospital of Yahyā b. Khalid b. Barmak. At his suggestion, Ibn Dhan allegedly translated many Indian medical works into Persian or Arabic. Sālih, the son or descendant of Bhela, was another famous Indian physician mentioned as a private practitioner at Baghdad during the ᶜAbbasid caliphate. The *Fihrist* [Index] of Ibn al-Nadīm (d. towards end of tenth century) gives the Arabic names of many works said to have been composed by Indian medical experts at this time.

Medical works by Indo-Muslim authors

These include a Persian translation of al-Bīrūnī's Arabic *Kitāb al-Saydana* by Abū Bakr b. ᶜAlī b. ᶜUthmān Kāshānī, presented to the Delhi Sultan Iltutmish in the early thirteenth century; and the *Majmūᶜa-i Diyā'ī* [Compilation by Diyā], written in 1329 by Diyā Muhammad Masᶜūd Rashīd Zangī ᶜUmar Ghaznawī, alias Mubārakābādī, who was the physician of Sultan Muhammad b. Tughluq. This Persian work is derived from a *Majmūᶜa-yi Shamsī* [Compilation by Shams al-Dīn], compiled by Khwāja Shams al-Dīn Mustawfī, which in turn is based on Sanskrit books of Indian physicians.

Sultan Fīrūz Shāh Tughluq (1351–88; see on him, Volume IV, Part One,

Chapter 14, pp. 277–8) was greatly interested in works of public utility. According to one historian, during his reign there were 70 public hospitals in Delhi, including one built at his own expense, where arrangements were made for treating in-patients, and drugs and food were supplied free. It was after him that a medical work, the *Tibb-i Fīrūzshāhī* [Book on Medicine for Fīrūz Shāh] was named; it is often mentioned by later medical writers, but does not seem to have survived.

From the fifteenth century, we know of the *Kifāya-yi Mujayyidiyya* [Sufficient Book for Mujayyid] by Mansūr b. Muhammad b. Yūsuf b. Ilyās, compiled during the rule of Sultan Zayn al-ᶜĀbidīn of Kashmir (1422–73): a comprehensive work, like the *Canon*, it deals with general principles, drugs and methods of treatment. The *Tashrīh-i Mansūrī* [Book on Anatomy for Mansūr], by the same author, is a collection of the anatomical knowledge of the period. Both these books long served as an important part of the medical education in Muslim India.

The second half of the century is distinguished for an important medical work, the *Shifā'-i Mahmūdī* [Book of the Cure for Mahmūd Shāh], a collective translation of important and famous Sanskrit Ayurvedic works by ʿAlī b. Muhammad b. Ismā'īl Asawālī Asīlī made during the reign of Sultan Mahmūd Shāh Begrā of Gujarat (1458–1512), who was an active patron of the translating of notable Arabic and Sanskrit books into Persian. Although Charak, Sushruta and other Ayurvedic works had been translated much earlier, reportedly in the time of Hārūn al-Rashīd, translation of Ayurvedic works in India only began for certain with the compilation of the *Shifā'-i Mahmūdī*. This is based on Wagbhat's work, a composite collection of eight Ayurvedic books, dealing with: anatomy; treatment of children's diseases; demonic ailments; treatment of diseases; treatment of wounds resulting from arrows, thornpricks, etc.; treatment of bites and stings of poisonous animals; treatment of evil influences and possession by demons and fairies; and sexual potency. Wagbhat being a pioneer author on medical subjects and his book being the first collection, it is not surprising that the material in different chapters and sections of his book is often intermixed and irregularly arranged. Sometimes the properties of drug disorders, and the causes of the disorders and their treatment, are all given in one section, while other sections are left incomplete in these details.

13

Language situation and scripts

A. Tafazzoli, D. Sinor, G. Kara and S. Blair

Part One

Iranian languages

(A. Tafazzoli)

The following is a general survey of the Iranian languages used in Central Asia from the seventh to the fifteenth century, with some information on the scripts used to write them.

Sogdian

Originally, Sogdian was the language of Sogdia, of which the most important cities were Samarkand and Bukhara. It belongs to the eastern group of Middle Iranian languages and has grammatical and lexical affinities with other eastern Iranian languages, such as Khwarazmian and Tumshuqese and Khotanese Saka once spoken in Central Asia. As well as in Sogdia proper, Sogdian was widely used in other regions, such as the oasis of Turfan in East Turkistan, as the language of trade, literary usage and culture. The Sogdian inscription of Bugut in Mongolia (see Volume III, pp. 342–3), written shortly after 581, shows that Sogdian was an official language of the First Türk empire centred on the Orkhon river in Mongolia.[1] Sogdia had lain outside the Sasanian empire, but was conquered in the seventh and eighth centuries by the Muslims under commanders such as Qutayba b. Muslim. After his death in 715, however, there was a temporary eclipse of Arab power and local principalities once again began to emerge.

1. Klyashtorny and Livshits, 1972, pp. 72 et seq.

Sogdian appears on the coins of the Sogdian rulers and was used for official documents and letters. From the sixth to the tenth century, it was the lingua franca of Central Asia. From about 1000 onwards, however, through the expansion of the New Persian language into Central Asia, it gradually lost its importance, though it survived as the spoken language of the region until the Mongol invasions in the early thirteenth century. Its only surviving descendant is Yaghnobi, spoken in Yaghnob in the upper valley of the Zarafshan river, north of the Yaghnob mountains in Tajikistan.

Apart from the inscriptions on the coins of Sogdia, which probably date from the second century,[2] the oldest Sogdian documents are the so-called Ancient Letters, probably dating from the early fourth century.[3] The newly discovered inscriptions of the upper Indus valley (near Shaital) most likely belong to the same period.[4] The next oldest one is the bilingual inscription of Bugut from the sixth century. Most of the other Sogdian documents belong to the period from the eighth to the eleventh century. Conveniently, they can be divided into two groups: religious and non-religious writings.

The religious Sogdian documents are the writings of the followers of Buddhism, Christianity and Manichaeism, who lived in the Turfan oasis and in Dunhuang, south-east of Turfan, where the documents were discovered at the beginning of the twentieth century and made known by such scholars as Paul Pelliot, Sir Aurel Stein and A. von Le Coq. The terminology used in the Buddhist Sogdian writings clearly shows that they were translated from Sanskrit or Chinese originals, often identifiable as such.[5] Many of the texts are in the tradition of Indian Sutra style, but others are translations of *jātaka*s and *avadāna*s, or medical and astrological texts.

The Christian Sogdian writings, mostly discovered in Bulayïq, north of Turfan, are Nestorian. Translated from Syriac, or in some cases, probably from Pahlavi[6] or Parthian, many of them are accompanied by Syriac parallel versions. They include fragments of the renderings of parts of the New Testament, based on the Syriac *Peshitta* – the main Syriac version of the Bible – as well as Christian stories, accounts of martyrs, saints' lives, homilies and so on.

The Manichaean Sogdian writings include fragments of the translations of the *Book of Giants*, the seventh Manichaean canonical work originally written by Mani himself, in Aramaic, the prophet's mother tongue, as well as brief passages of the *Epistles* and fragments of the *Kephalaia*. Other fragments include hymn-cycles, hagiographic materials, cosmological and confessional texts,

2. Henning, 1958, pp. 25–6.
3. Grenet and Sims-William, 1987, pp. 101–19.
4. Sims-William, 1989*a*, p. 8.
5. Hansen, 1968, pp. 77–99; Dresden, 1983, pp. 1221–4; Utz, 1980.
6. Hansen, 1968, p. 94.

religious calendar-tables, word-lists and glossaries.[7] The spread of Manichaeism dates back to early Sasanian times, particularly the period after Mani's death (277), when a great number of Iranian Manichaeans took refuge in the eastern provinces of the empire.

The non-religious materials, apart from the old coins of Sogdia, the Ancient Letters and the upper Indus valley inscriptions mentioned earlier, consist of coins discovered in Panjikent,[8] and dating from the reign of Ghūrak (711–38), the king of Samarkand, and ostraca from the same site.[9] There are also inscriptions on the wall paintings of Afrasiab and Panjikent which belong to the end of the seventh or the beginning of the eighth century. More important are the Sogdian documents discovered in 1933 in the ruins of a castle at Mount Mug in northern Tajikistan. They consist of more than 70 fragments written on parchment, paper and wood, parts of a correspondence from the archives of Dīwāstich, the last local ruler of Samarkand. Other materials that should be mentioned are the short inscription of Ladakh (Tibet), to the east of Kashmir, which probably dates from 841–2; and the trilingual inscription (Sogdian–Chinese–Uighur) of Karabalghasun (the summer capital of the Uighurs on the Orkhon river in Mongolia), which belongs to the period between 808 and 821. The rock inscriptions from Kyrgyzstan, commissioned by the Turkish Karakhanid rulers, belong to the ninth to the tenth century. To all these works, a number of words, written in the Arabic alphabet and used in the works of writers such as al-Bīrūnī, al-Fārābī, and others, can be added.[10]

Scripts

Three types of script were used for writing Sogdian: the native Sogdian one, Syriac Estrangelo and the Manichaean one, all ultimately derived from Aramaic. The Sogdian script was used for secular materials and Buddhist texts and includes several varieties. The most common of these was from Samarkand, the second from Bukhara, and there is a third, not localized. The Sogdian script was adopted to write the Old Turkic (Uighur) texts, which in turn served, in the thirteenth century, as a model for the Mongolian alphabet, itself a prototype of the Manju alphabet. In the Sogdian system of writing there exist historical and pseudo-historical spellings, and Aramaic heterograms are used. The Christian Sogdian texts were written in a modified Syriac Estrangelo script. Occasionally Christians also used the Sogdian script.[11]

7. Dresden, 1983, pp. 1224–5.
8. Smirnova, 1963, pp. 29 et seq.; 1981.
9. Livshits, 1970, pp. 256–63.
10. Müller, 1907, p. 465; Tafazzoli, 1973, pp. 7–8.
11. Sims-Williams, 1981, pp. 347–60; Bazin, 1975, pp. 41 et seq.; Henning, 1958, p. 52.

The Manichaean script, adopted from the Palmyrene prototype by Mani himself, was used for writing the texts of that religion. The same alphabet was used for Middle Persian (Pahlavi), Parthian, Bactrian, New Persian, Kuchean and Uighur. Sogdian words in the Islamic sources are recorded in the Arabo-Persian script.

Khwarazmian

Khwarazmian was spoken in the ancient province of Khorezm (Khwarazm), south of the Aral Sea between the Oxus (Amu Darya) and the Jaxartes (Syr Darya), now in Uzbekistan. Khwarazmian materials are chronologically divided into two groups: early and late. The early Khwarazmian documents are scanty and consist of four categories: (a) coins with Khwarazmian inscriptions belonging to the third or second century B.C.; (b) inscriptions on wood and leather from Toprak-kala, a royal palace, probably from the second half of the second century A.D.; (c) the funerary inscriptions discovered in Tok-kala (14 km north-west of Nukus), written with black paint on the ossuaries of stone, alabaster or clay and dating from the seventh to the beginning of the eighth century; and (d) a few inscriptions on silver vessels, dated between the sixth and the eighth century.[12]

The late Khwarazmian writings belong to the Islamic period. The eleventh-century Ghaznavid historian Abu 'l-Fadl Bayhaqī, on the authority of al-Bīrūnī (973–1048), refers to a letter in Khwarazmian, addressed to the ruler of Khwarazm. In his works written in Arabic such as *al-Āthār al-bāqiya* [The Remaining Traces (of Past Ages)] and *al-Saydana fī 'l-tibb* [On Medicinal Drugs], al-Bīrūnī himself recorded a number of Khwarazmian words, such as calendar and astronomical terms, and the names of botanic and medicinal herbs. Two centuries later, another Khwarazmian scholar, al-Zamakhsharī (1075–1144), compiled his great Arabic–Persian dictionary, the *Muqaddimat al-adab* [Prologomenon to Literature]. In one of its manuscripts, the Arabic words, phrases and sentences are interlined with Khwarazmian glosses, apparently inserted by a Khwarazmian scribe. Two of its other manuscripts also have occasional Khwarazmian glosses. Khwarazmian sentences and words can also be found in a series of Arabic law books: the *Yatīmat al-dahr fī fatāwā ahl al-ᶜasr* [The Unique Pearl of the Age Concerning the Legal Decisions of the People of the Age] by Muhammad b. Mahmūd al-Tarjumānī (d. 1246–7), the *Qunyat al-munya* [The Acquisition of the Object of Desire] by Najm al-Dīn al-Ghazmīnī (d. 1260) and the *Risālat al-alfāz al-Khwārazmiyya* [The

12. Tolstov, 1948, pp. 173–95; Vaiynberg, 1977, pp. 48 et seq.; Henning, 1958, p. 57; 1965, pp. 166–8; Tolstov and Livshits, 1964, pp. 231–51.

Treatise Containing Khwarazmian Words in the *Qunya*] by Jalāl al-Dīn al-ʿImādī of Jurjaniyya.[13]

SCRIPTS

Early Khwarazmian documents were written in the indigenous Khwarazmian script, derived from Aramaic. For the late or medieval writings, however, the Arabo-Persian alphabet was adopted, but with some modifications, e.g. *f* with three suprascript points representing the labio-dental sound *β*.

Khotanese and Tumshuqese Saka

The language of the Saka people is represented in two series of written documents, Tumshuqese and Khotanese, stemming from the Tarim basin. They belong to a period between the seventh and the tenth century (see Volume III, Chapter 11).

Bactrian

Another eastern Middle Iranian language is Bactrian (see Volume II, Chapter 16). Most of its documents belong to the third and following centuries (see Volume III, Chapter 16); however, seven manuscripts, found in Toyoq, may belong to the period from the seventh to the ninth century. In addition to these manuscripts, which were written in Greek script, a fragment from Kocho, in Manichaean script, probably belongs to the same period.[14]

Parthian

For the early Parthian writings, see Volume III, Chapter 5. As to the later writings, from the period from the sixth to the tenth century or later, a number of fragments were discovered among the Parthian materials in Turfan. These late texts were the products of the Sogdian-speakers in Central Asia, for whom Parthian was a dead, religious language. Their content – for example, the mention of the name of church leaders or Uighur princes, or linguistic criteria, such as the number and nature of the Indian loan words used – places these texts in the late period.[15]

13. Henning, 1958, pp. 4–5; Togan, 1951; Benzing, 1968; 1983; MacKenzie, 1989, pp. 265–76.
14. Gershevitch, 1980, p. 1256; Sims-Williams, 1989*b*, p. 346; Gershevitch, 1980, pp. 273–80.
15. Boyce, 1983, p. 1163; Sims-Williams, 1983, pp. 132–41.

Middle Persian (Pahlavi)

Although Middle Persian (Pahlavi) was the administrative and religious language of the Sasanian period, most of its surviving works were composed and compiled in the ninth and tenth centuries; they have already been described in Volume III, Chapter 3. Here it suffices to point out that, after the Arab conquest, the Arab rulers, because of a lack of administrative expertise, were obliged to employ Iranian secretaries and civil servants to administer the state bureaux. Thus the registers were all kept in Pahlavi until 697 in western Iran and until 742 in Khurasan. The early coins of the Arab rulers were struck with Pahlavi inscriptions.

As the religious language of the Zoroastrians, however, Pahlavi had a longer life and survived until the tenth century. Besides its use in the writing and compiling of religious books, it was also employed in the Zoroastrian funerary inscriptions of the seventh to the ninth century. At the beginning of the eleventh century, it was used for the inscriptions of the cave of Kanheri near Bombay. After this period, it gradually passed into oblivion and was only known among a small circle of Zoroastrian priests, who also continued copying Pahlavi books.

A form of Middle Persian ('Manichaean Middle Persian') was also used by the Manichaeans in Central Asia as their religious language during the early Islamic centuries, and occasionally, by some Iranian Muslim rulers, as in the funerary inscriptions of Gurgan and Mazandaran (ninth to eleventh century). Even ᶜAdud al-Dawla, the Buyid amir, struck a gold medal with a Pahlavi inscription in 969–70. The Christian Persians also used this form of Middle Persian, as shown by the copper plate of Quilon (in modern Travancore in South India), which dates from the ninth century, as well as the cross inscriptions, probably of the same period. The Pahlavi quotations in the early Arabic and Persian texts should also be mentioned; they generally show a stage of development from Pahlavi to New Persian.[16]

New Persian

New Persian, also called Dari Persian (*pārsī-/fārsī-yi darī*) in classical Persian sources, is the continuation of Pahlavi or, rather, of one of its variants, as can be proved by a comparison of the phonologies, morphologies and basic vocabularies of the two languages. Besides Pahlavi, one of its variants was already in use as the spoken language in the capital Mada'in (Ctesiphon) in the late Sasanian period. As the everyday language of the court or capital (*darbār*), it was named

16. Henning, 1958, pp. 50–1; Tafazzoli, 1974, pp. 337–49.

darī. By late Sasanian times, it had already spread from western Iran to Khurasan, where it gradually ousted the Middle Persian tongue Parthian and its dialects. After the Islamic conquest it expanded farther into the north-east and the east, where it was influenced by local dialects and languages. In Khurasan it was enriched with Parthian elements, and in Transoxania it became mingled with Sogdian and other eastern dialects. As the administrative, religious and scientific language, Arabic exerted a greater influence on New Persian, above all, in its vocabulary. Only a few Persian verses, short sentences, phrases and words have survived in the Arabic texts from the seventh and eighth centuries. By the ninth century, however, the Persian language was already widespread in Khurasan, Bactria and the larger cities of Transoxania. During Samanid times, New Persian became a flexible literary medium, above all, in poetry, and gradually began to be used for science, literature and culture, although it was a long time before it replaced the supreme language of Islamic religion and culture, Arabic.[17]

The rulers and amirs of an Iranian dynasty like the Saffarids of Sistan, who were not acquainted with Arabic and were prompted by a certain proto-national sentiment, encouraged their court poets to write in Persian rather than in Arabic. Yaᶜqūb b. Layth (861–79), the Saffarid ruler of Sistan, for example, commanded Muhammad b. Wasif to compose poetry in Persian. Such attempts eventually resulted in the creation of an elegant and fine literary language used in the works of the tenth- and eleventh-century poets such as the Samanid Rūdakī (d. *c.* 941) and the Ghaznavid Firdawsī (d. *c.* 1020).[18]

Later, the domination of the Mongol and Turco-Mongol dynasties brought a certain number of Mongolian words into Persian. In the high valleys of the Panj river (i.e. the upper Oxus), the group of Pamir languages has persisted, and these continue the Bactrian, Saka-Tokharian and Hephthalite dialects of eastern Iranian languages: Shughnani, Rushani, Ishkashimi, Wakhani and Yazgulami.

Besides the Muslim Iranians who used Dari Persian as their literary language, the Iranian Jews, Christians and Manichaeans, too, wrote their works in variants of this language. Early specimens of Judaeo-Persian, as found in the inscriptions of Tang-i Azao in Afghanistan of 752–3 and in the fragment of a letter discovered at Dandan Öiliq near Khotan in East Turkistan (also attributed to the eighth century), should be noted. A series of early Judaeo-Persian texts, dating from the tenth and eleventh centuries and originating from the south-west (Fars and Khuzistan), is written in a language similar, but not identical, to Dari Persian as used in the east and the north-east. Later works consist of the thirteenth-century funerary inscriptions of Ghur (central Afghanistan).

17. Lazard, 1990, pp. 239–42; Lentz, 1926, pp. 251–316; Henning, 1939, pp. 93–106.
18. Doerfer, 1963–75.

Judaeo-Persian works were composed in Iran from the fourteenth to the eighteenth century, most recently written by the Jewish community of Bukhara during the period from the last part of the seventeenth to the nineteenth century. The early Judaeo-Persian texts have linguistic affinities with the text of the *Qur'ān-i Quds*, a Persian translation of the Qur'an originating from Sistan and probably dating from the eleventh century. A careful comparison between these texts and classical Persian literary works leads to the conclusion that at least two varieties of New Persian were in use in the tenth and eleventh centuries, one in the east and north-east, i.e. in Khurasan, and the other – linguistically closer to Middle Persian – in the south, from Fars and Khuzistan to Sistan.[19]

To the Iranian Christians can be attributed fragments of the Psalms translated from Syriac, and a sheet from a pharmacological text.[20]

Fragments of texts, such as *Bilawhar u Budīsaf* [Barlaam and Jasaphat], an elegy and confessional text, and others, all belonging probably to a period from the tenth to the eleventh century, and certainly before the thirteenth century, were written in Manichaean New Persian. They are probably literary works of the Iranians who had migrated from Khurasan to Central Asia.

From the end of the tenth century onwards, the Dari Persian of the northeast gradually spread to other parts of Iran, including the south and the west, and was used as the standard administrative and literary language.

Scripts

ARABO-PERSIAN SCRIPT

Persian texts were written in the Arabic script with some modifications. For the sounds proper to Persian and for which there were no signs in the Arabic alphabet, special variations were adopted. For *ž*, *č* and *p*, the Arabic letters *z*, *j* and *b* with two extra dots, i.e. a total of three dots, were adopted respectively; for representing g, the Arabic letter *k* with an extra oblique stroke was adopted; and for the labio-dental sound *β*, which existed in some dialects of classical Persian, the Arabic letter *f* with two extra superscript points was used.

19. Henning, 1957, pp. 335–42; Lazard, 1988, pp. 77–98, 205–9; 1987, pp. 167–76; 1990, pp. 240–1.
20. Sundermann, 1989, pp. 355–64.

MANICHAEAN SCRIPT

The Manichaean Persian fragments were written in a special Manichaean script. The letter *k* or *q* with two superscript dots was used for the Arabic *q*. For representing the Arabic *ʿayn*, the Manichaean letter *ʿayn* with two superscript dots was used, while *p* with two superscript points was used for *f*. The Arabic *t* was sometimes represented by the Manichaean letter *δ*, borrowed from Sogdian, but usually by a double *δ*, often with interwined tops. The letter *y* with two dots was used to represent the Persian vowel *ē*.[21]

SOGDIAN SCRIPT

The Christian New Persian fragments are written in the Syriac script, used also for the Christian Sogdian texts discovered in Bulayïq (see above). For the sounds that had no signs in the Syriac alphabet, modified Syriac letters were used, e.g. the letter *sade* (ṣ) for *ǰ* and *č*; whereas for the sound *γ* (gh), the modified Syriac *gōmal* (g) was adopted, and for the sound *δ* (dh), the modified Syriac letter *dalath* (d) with an extra dot was employed.

HEBREW SCRIPT

The Judaeo-Persian texts were written in the Hebrew script, with some modifications. In some cases, diacritical signs were also used to distinguish certain letters that represented different sounds.

Part Two

OLD TURKIC AND MIDDLE TURKIC LANGUAGES

(D. Sinor)

Old Turkic

This is the name of the language in which the earliest extant Turkic texts were written. Some small fragments may date from the sixth century, but the most important monuments, the funeral stelae discovered in Mongolia, can be dated with precision to the first part of the eighth century. They were written in the so-called 'runic' script, and from the historical as well as the linguistic point of view, their importance is quite extraordinary. Dedicated to the memories of

21. Henning, 1958; Sundermann, 1989.

some Türk notables – the prince (*tegin*) Köl Tegin, the Kaghan Bilge, and the statesman Tonyuquq respectively – they are our principal native sources for Türk history (see Volume III, Chapter 14). Their linguistic significance is equally high: they constitute the earliest known texts composed in any Altaic (Turkic, Mongol or Tunguz) language.

As a literary language, Old Turkic was used for at least a millennium. Some colophons of a copy of the Buddhist Sutra *Suvarnaprābhāsa* date from the end of the seventeenth century. Old Turkic is often also called (Old) Uighur since, undoubtedly, it was used not only by the Türks but also by the Uighurs who supplanted them in Mongolia. Two of the Old Turkic inscriptions found in Mongolia, those of Shine-usu (called also Bayan-chor) and of Suji, were erected by the Uighurs. In the Old Turkic manuscripts found in Chinese Turkistan, mainly in the Turfan region, the terms *türk tili, uyγur tili* (Türk, viz. Uighur language) appear as synonyms to describe the language in which they were written. The above-mentioned *Suvarnaprābhāsa* even uses the term 'Türk–Uighur language' (*türk uyγur tili*).

Three dialects may be distinguished within Old Turkic. The differentiation is usually made on the basis of an *ń* (a palatalized *n* as in French 'ag*n*eau') ~ *n* ~ *y* variation as exemplified by a word for 'bad': *ańïγ* ~ *anïγ* ~ *ayïγ*. The first of these dialects was that of the Türks, the second was used by the Uighurs and appears also in the Manichaean texts, and the third was current in Chinese Turkistan and is typical of Buddhist texts. It is generally used also in texts related to everyday life, such as legal documents and medical texts. It could be that the *ayïγ* dialect represents the language of the Western Türks, which, according to Chinese sources, 'differed a little' from that spoken by the Eastern Türks.

Old Turkic already displays the principal phonetic and morphological features characteristic of the bulk of Turkic languages – usually referred to as Common Turkic (CT) – such as the absence of grammatical gender, of a definite article ('the') and of a verb corresponding to 'to have'. As all the Altaic languages, so Old Turkic is agglutinative, one in which grammatical relationships are expressed by appending to a meaning-carrier, unchangeable root a suffix: e.g. *söz* (word), *sözlär* (words), *sözlärim* (my words), *sözlärimdä* (in my words). In its phonology, Old Turkic shows the Common Turkic reluctance to have two consonants in initial position and the vowel harmony which commands that velar (*a*, *o*, *u*, *ï*) and palatal (*e*, *ö*, *ü*, *i*) vowels should not appear within the same word.

When compared to Common Turkic, Old Turkic shows some archaic features, such as traces of an old plural in *-t*. A particularly interesting feature is an archaic system of numerals in which, in the double-digit numbers, the tens are indicated by the next higher multiple of ten, e.g. *bir otuz* '21' (= one thirty), *eki otuz* '22' (= two thirty). Old Turkic also shows traces of another archaic system of numerals. In it, the 'tens' precede the 'ones', and the two are

linked with the word *artuqï*, third-person possessive of *artuq*, meaning approximately 'additional, an extra amount, excess', e.g. *otuz artuqï bir* '31'.

In the structure of the sentence, the qualifier always precedes the qualified. In Old Turkic word order, the expression 'a child difficult to cope with' would become 'a difficult to cope with child'.

The vocabulary of Old Turkic includes a considerable number of loan words borrowed from Chinese, Sogdian, Tokharian, directly or indirectly from Sanskrit, and a number of other languages. These loans, relatively rare in the *añïγ* dialect, are most frequent in the Buddhist texts, replete with technical terms borrowed mostly from either Sanskrit or Chinese. The absence of loans from Mongol should be noted, as should the presence of a few Ugric and Samoyed words which point to early contacts with these peoples.

Old Turkic was written in a number of scripts. The early inscriptions by the Türks used the above-mentioned 'runic' script, so-called because of its superficial resemblance to the Germanic runes. This is a script composed of letters, using some pictograms and more often than not omitting the indication of vowels. Some consonants have a double form, one used in connection with velar, the other with palatal vowels. Thus, for example, the *l* in a syllable such as *la* is written differently than the *l* in *lü*. Quantitatively, the use of the Uighur script was the principal medium to record Old Turkic.[22] The term 'Uighur' is rather misleading since the Uighurs of Mongolia used the runic script. Following their migration from Mongolia into the Tarim basin some Uighur groups abandoned their original *anïγ* dialect and adopted the local *ayïγ* language used in the region by certain other Turkic peoples. To write it, an adaptation of the Sogdian script was generally used which, in Western scholarship, acquired the name Uighur. Some texts were written in the Manichaean script (a slightly developed form of the Syriac Estrangelo) or, more rarely, in the Sogdian, Brahmi or, in a few instances, Tibetan script.

Middle Turkic

The reason why no mention of the Arabic script has been made is that the texts written in it belong to the Middle Turkic period. Just as there is no clear-cut chronological separation between classical and medieval Latin, so Old and Middle Turkic continued to be written side by side. The Arabic script is a non-linguistic criterion distinguishing the two languages. Irrespective of the date when they were written, Old Turkic texts are pre-Islamic while Islamic influence was strong on what we call Middle Turkic. Most Middle Turkic texts are written in the Arabic script.

22. For a detailed description of the Uighur script, see Part Three below, pp. 336–7.

Middle Turkic had several dialects. The earliest Middle Turkic texts, written in the second half of the eleventh century, represent what is sometimes called the Karakhanid dialect. Mahmūd al-Kāshgarī's description of the Turkic languages of his age and the didactic poem *Qutadghu bilig* [Wisdom of Royal Glory][23] are the principal texts written in this language. Texts of the latter work survived in Arabic as well as in the Uighur script and show strong Islamic influence.

The Khwarazmian dialect used in that province and, more generally, in the territory of the Golden Horde, is attested in texts dating from the fourteenth century. The literary Turkic language of Central Asia was Chaghatay, often called Old Uzbek, written from the first half of the fifteenth to the middle of the nineteenth century. It should be noted that no uniform scholarly opinion exists on the classification of the various Middle Turkic texts. To a differing degree they all continue Old Turkic.

Among the sound changes one may mention *b-* > *m-*, e.g. *bän* 'I' > *män*, or *-b* > *-v*, e.g. *sub* 'water' > *suv*. In morphology, the Old Turkic accusative suffix *-gi* slowly ceded its place to a *-ni* form. In the vocabulary, besides scores of Arabic and Persian loan words there appear also a few borrowings from Mongol.

Karakhanid, Khwarazmian and Chaghatay form what may be called the eastern group of Middle Turkic. A western group would comprise various Kïpchak Turkic texts among which pride of place belongs to the so-called *Codex Cumanicus*, compiled over a period in the middle of the fourteenth century. Written throughout in Latin script, the texts constitute, as it were, a phonetic transcription of the spoken Cuman (Kïpchak) language. The Codex contains several translations of Latin hymns and passages from the Bible, short sermons prepared by Catholic missionaries, and riddles. The texts are preceded by a Latin–Cuman–Persian glossary and are followed by a Cuman–German dictionary. It should not pass unnoted that within the Codex, the language used is called *tatar*. From the middle of the thirteenth century and at least for 100 years or so, Cuman was the lingua franca of western Central Asia.

The so-called Mamluk-Kïpchak documents reflect another Western Middle Turkic dialect. They represent the language of the Kïpchak slaves in Egypt, where they founded the Bahri Mamluk dynasty (1250–1382). In an Arab milieu, these Turks kept their language for the best part of a century and showed considerable linguistic interest. The extant texts in Arabic script comprise several Arabic–Kïpchak vocabularies, grammars and also some literary works, most of the latter being translations. Among the phonetic peculiarities of this language, when compared to Khwarazmian, one may mention the loss of the final *-g*, as exemplified by Khwarazmian *qorquγ* > Kïpchak *qorqu* (fear).

23. Dankoff, 1983.

Part Three

PRE-MONGOL AND MONGOL WRITING SYSTEMS

(G. Kara)

The Toba or Tabghach, an early medieval people of Altaic, presumably Mongol, tongue who founded the Northern Wei dynasty at the Great Wall (386–534), are reported by Chinese historical sources to have had their own writing system and books written in their own language. Nothing has survived of that Tabghach script, but the Chinese records preserved the important Turco-Mongolian term *bitekčin* (scribe), denoting then a high official of the Tabghach administration and derived from the root Mong. *biči-* < *biti-*, Ancient Türk. *biti-* 'to write'.

Much more is known about the writing systems of the Kitan, the ruling people of the Liao dynasty (907–1125), established in what is now north-eastern China and the eastern part of the Mongol state. In the first third of the tenth century this nation created two particular scripts of Chinese inspiration: the 'large' and the 'small' characters (*dazi* and *xiaozi* in the Chinese sources). These are the first among the 'Siniform' writing systems created by non-Chinese peoples such as the Tangut (early eleventh century) and the Jurchen (early twelfth century).

The lines of both Kitan scripts are written vertically, the first line beginning on the right side. The characters (ideograms and syllabograms) of the 'large' script are written one below the other; some ideograms, e.g. those meaning month, day, emperor, horse, were derived from Chinese characters, but most of them, though 'Chinese-looking', are independent of the Chinese system. The other, 'small' script has no obvious borrowings from Chinese; characters formally identical with Chinese ones have meanings different from those of their Chinese graphical cognates, e.g. 'gold' in Kitan, 'mountain' in Chinese. The 'small' script character for 'heaven' seems to be derived from the Chinese ideogram 'heaven', but without knowing the meaning of the Kitan sign, it would be impossible to discover its origin.

In the Chinese records the 'small' script is said to have fewer characters than the 'large' script, but nevertheless covers everything. This means that many words are written in syllabograms or, perhaps, even in letters. Ideograms could be also used as syllabograms, for example the ideogram for *tau* 'five' is used as a syllabogram at the beginning of the word *tau.l.a* 'hare'. If several characters record a word, they are written in one block, usually from the left to the right and downwards. Thus the Chinese name of the Kitan empress and poetess Xuanyi is written in two blocks: *s.üä.än* and *i.i*, the first block forming a triangle, the second a quadrangle.

According to the official history of the Liao, compiled during the Mongol rule over China, the 'small' script was invented by Diela, brother of the first emperor, after he had become acquainted with the language and script of the Uighurs. This information led later researchers to the incorrect assumption that the 'small' script was created from the Sogdo-Uighur alphabet or from the Türks' runiform script also used by the Uighurs (see Part Two above). However, the Kitan epigraphic monuments (large epitaphs and other inscriptions) clearly show that we are dealing with two independent 'Siniform' systems of writing. In the Kitan texts written in the 'small' or 'assembled' script a considerable number of Sino-Kitan elements, such as Chinese titles and proper names, were identified by Chinggeltei and his team in 1985. These Kitan transcriptions of Chinese words show that the traditional Chinese way *fanqie* marking the pronunciation of one character by two other ones was adapted by the Kitan. Its usage seems to be extended to recording Kitan words.

More than a dozen Mongol words were detected in the 'small' script sources: *tau* 'five', *tau.l.a* 'hare', *n.q.a* 'dog', *t.q.a* 'hen/cock', *eu.ul* 'winter', *m.ng.* 'silver', *im.a* 'goat', *m.g.o* 'serpent', *uei* 'no, without', *k.uei-* 'to reach', *y.au-* 'to go', *s.au-* 'to sit', and in Chinese transcription: *po* 'season', *ǰau* 'hundred', *šowaa* 'bird of prey, falcon', *qa-* 'to shoot', *nair* 'sun', *sair* 'moon', *qašuu* 'iron', cf. Mongolian *tabun, taulai, noqai, taqiya, ebül, mönggün, imaγan, moγai, ügei, kür-, yabu-, saγu, on, ǰaγun, sibaγun, qar-/qarbu-, naran, saran,* Daur *xasoo*. The ideogram *ai* 'year', possibly derived from the Chinese ideogram *nian*, with the same meaning, also occurs as syllabograms in blocks; the word itself can be connected with Manchu *aniya*, with the same meaning. Nevertheless, many blocks remain undeciphered, and some, with a reading and meaning more or less firmly established, cannot be identified with any known words of the area (e.g. *č.i.š.i.d.b.n* 'filial piety').

The uninterrupted tradition of Mongol writing started in the early thirteenth century. In 1206, when Temüjin was enthroned as Chinggis Khan or Universal Ruler of his pastoralist people, subsequently head of a world empire, he ordered the recording of the distribution of 'the whole people into parts' and the judgments or sentences in the 'Blue Book', so that these records affirmed by him would not be altered by anybody 'until the end of all generations'. These records are lost for ever, but it is certain that they were written in the vertical Uighur version of the cursive Sogdian script. This alphabet had been used at the court of the Turco-Mongol state of the Naiman at the time of the Mongolian conquest.

The Uighur script and its orthography had no more than 15 or 16 graphemes (out of the 22 Semitic letters). Many of them have 3 or 4 combinatorial/positional allographs: initial, medial, final and independent variants. These are used for more than 22 basic phonemes of Mongolian. Diacriticals and orthographic means lessen the number of possible ambiguities. Sequence-final Z (*zain*) was used for Mongol *s*, initial and medial T (*tau*) still marks both *t* and *d*,

medial D (originally the Semitic *lamed*) both *d* and *t*, etc. The first line starts on the top of the left side; the letters recording a word are connected in one sequence, but after some letters (*l, m, n, q, γ, r, y*) the final *a/e* can be or is preferred to be written separately, while the preceding final consonant is represented by a final letter, as are some suffixes. Thus the end of a continuous sequence does not necessarily coincide with the end of the word. The graphemes and their allographs are composed of only a few graphic elements, a peculiarity which makes the script easy to write.

This very economical and flexible alphabet was forced into the background in 1269 by the emperor Qubilay's decree concerning the introduction of his square, 'imperial script' or 'new Mongol alphabet'. The emperor had `Phags-pa Blo-gros rgyal-mtshan, his Tibetan vassal and Buddhist teacher, create the new writing system suitable not only for Mongolian, but also for the other languages of his enlarged empire, the capital of which he had moved from the heart of Mongolia to what is now China's northern capital. The new script is basically of Indo-Tibetan character. Most of its graphemes go back to Tibetan and Indian letters. Its syllabic orthography is Indo-Tibetan, but the vertical direction of the lines and the way in which the letters of a syllable are bound is taken from the Uighur script. The latter is the source of the full, vertical linearity of the free (consonantal) and bound (vocalic and semi-vocalic) graphemes. The rounded front vowels (*ö* and *ü*) are rendered by digraphs (*ä+o = ö*, *ä+u = ü*), similar to what is seen in the Uighur texts in Brāhmī script. Qubilay's alphabet is able to mark various diphthongs, long vowels, and the subphonemic difference of Middle Mongolian velar *q* and palatal *k*, the wide *ä* and narrow *e* (the latter difference was, however, phonemic in the Chinese language of official documents), and Chinese velar *ï*. The square shape of most of the graphemes imitates the angular variety of the Chinese 'seal-script'.

With the introduction of this 'imperial script', Qubilay emphasized his breaking away from the pastoralist traditions and from the over-powerful Uighur influence. Yet the very accurate new writing system proved to be too complicated in comparison with the Uighur script. Despite the imperial decree of 1269, the ornamental, angular characters of `Phags-pa could not compete with the graphically much simpler Uighur alphabet. Some years after Qubilay's death the Uighur letters were written again and printed (as we see in the 1312 print of the Mongolian *Bodhicaryāvatāra*), although the emperor's square script remained in use during the fourteenth century for some documents and inscriptions.

Part Four

The Tibetan script

(G. Kara)

Tibetans have the oldest continuous tradition of writing in Inner Asia. Historical lore claims it was Srong-brtsan sgam-po (d. 649), the first universal ruler of the Tibetan empire, who sent Thon-mi Sambhota, his high dignitary, to India in order to find an alphabet suitable for the Tibetan language. He and his Indian masters established a writing system based on one of the alphabets then in use in northern India. However, the Tibetan language required a handful of new characters for sounds that were unknown in India, while it had no need of those Indian letters without equivalents in the Tibetan sound system. Finally, the new alphabet received a definitive Tibetan shape.

The Tibetan alphabet, composed of 30 consonants, followed the Indian model in arranging the signs in phonetically coherent groups. The first group embraces the letters for stops and affricates with Indian equivalents: the 'gutturals' (*k*, *kh*, *g*, *ng*), palatals (*ch*, *chh*, *j*, *ny*), denti-alveolars (*t*, *th*, *d*, *n*) and labials (*p*, *ph*, *b*, *m*); the Indian set of letters for supradentals or 'cerebrals', as well as for the voiced aspirated sounds, are omitted. The second group consists of letters without Indian equivalents: alveolar affricates and spirants. The third group consists of the rest of the Indian alphabet with *y*, *r*, *l* and *s*, *sh*, *h*, to which the equivalent of the Indian initial *a*, the 'big A' (here a voiceless glottal stop), is added. Like the alphabets of Indian origin, the Tibetan script has a syllabic orthography with the 'inherent', that is, unmarked *a* (if no other vowel is involved). As Tibetan has numerous and heavy initial consonantal clusters, the usual Indian method of accumulating all consonants at the beginning of the next syllable (as in Buddha written *bu=ddha*) did not work, and the Tibetans introduced the dot for marking the end of a real syllable (as in the name of the emperor *srong.brtsan. sgam.po.*). Vowels other than *a* (*i*, *u*, *e*, *o*) are marked by bound graphemes; all 'free' graphemes (even the so-called 'little A' and 'big A') mark consonants. Some semi-vowels and semi-consonants (*y*, *r*, *l*, *v*) are also rendered by bound graphemes derived from the 'free' ones. As to the initial clusters, a strict order regulates which letter should be written before (*g*, *d*, *b*, *m*, `), above (*r*, *l*, *s*) or below (*y*, *r*, *l*, *v*) the basic character. Thus the syllable *bsgyur* has the shape:

s
BgR
y
u

where our capital letters symbolize full-size graphemes, while the small letters represent the superscribed *s*, the basic g of diminished size as well as the bound

y and *u*. This means that the main, left to right, linearity concurs with the partly vertical arrangement of such initial clusters.

Tibetan orthography leaves no ambiguity in coding or decoding any Tibetan syllable. Even those later dialects that developed a highly simplified phonetic appearance and a sophisticated system of tonemes can be fairly recorded in the classical orthography.

The letters read as syllables with the unmarked *a* or with any marked vowel are also used as cardinal number markers. For instance, the 'big A', the last consonantal letter of the alphabet with the unmarked *a*, corresponds to 30, the same letter with the last vowel sign *u* marks 150.

The ancient dialect for which the script was devised must have been a West Tibetan language with several features now lost and unknown in central Tibet. The Old Tibetan documents (eighth–ninth century) seem to represent the old written language influenced by an early form of the central vernacular of the empire.

An early Tibetan mention of writing is found in a ninth-century copy of the *Extracts of the Imperial Annals*: 'The Hare year (A.D. 655) arrived, the sovereign resided in Mer-khe, and Srong-rtsan, the great dignitary, wrote the Script of the Orders and Laws in `Gor-ti . . .'

The oldest extant monument of the Tibetan alphabet is the inscription of the 760s on the stone pillar of Zhol in Lhasa. The shape of the characters shows no essential difference from that of the later calligraphy used in the vast religious and secular literature. The later form is called *dbu-chan*, i.e. 'headed', because the 'head', a horizontal line, is drawn at the top of most consonantal letters. Another type has no 'head' (*dbu-med*). This is also found in the pre-eleventh-century manuscripts. The latter type developed into various, highly divergent graphic styles used for different purposes. One of them, called *`khyug-yig* 'running script', has been used in personal letters. In this style the originally separate characters can also be joined horizontally as in modern Latin cursive or in Arabic. Another elegant *dbu-med* style is called *`bam-yig*. In it some characters have long vertical elements so that this style demands much space between the lines. Such a style occurs, for example, in a Sino-Tibetan inscription of the fourteenth century.

It seems that in Tibet the script first served the secular power, but very soon the followers of the Buddhist religion, which was brought here from northern India, Nepal and T'ang China, became its principal users. No other script had been accepted by the Tibetans of the Middle Ages. It was only much later that Muslim Tibetans of western Kashmir (Baltistan) began to use Arabic script or developed their own script. The Tibetan script survived the fall of the Tibetan empire and in the Mongol emperor Qubilay's time it inspired his square 'imperial alphabet' established by his Tibetan monk, `Phags-pa (see above).

Part Five

ARABIC

(S. Blair)

Arabic, the language of God's revelation to the Prophet Muhammad and hence the language identified with Islam, was introduced into Central Asia for official purposes along with the Muslim campaigns of conquest in the late seventh and early eighth centuries. Merv, which served as the centre of the Arab garrison in the region, was a major mint, and dirhams issued there from 695–6 onwards use the new epigraphic style that had been introduced by the Umayyad caliph ᶜAbd al-Malik (685–705) throughout the empire. The silver coins are decorated exclusively with Arabic legends written in the angular script commonly known as Kufic. The inscriptions comprise a historical band with the name of the mint and the date, as well as the Muslim profession of faith and verses from the Qur'an.

The oldest surviving evidence for Arabic writing on other media is provided by a unique letter found in 1933 at Mount Mug in the Zarafshan valley alongside Sogdian manuscripts (see above, Part One), a Chinese document, and various other objects. Written in 16 lines of Kufic in velvety black India ink on clear yellowish leather, the document is a letter from Dīwāstich, the ruler of Panjikent, to the Arab amir al-Jarrāh b. ᶜAbdallāh. It can be dated precisely because it names four people who were active in Central Asia from 718 to April 719. Penned in the firm hand of an experienced secretary, it shows that the style of Arabic writing used in Central Asia at the beginning of the eighth century was the equal of that used elsewhere in the caliphate.[24]

Despite the rise of New Persian language and literature in the ninth century, Arabic remained the language of culture in Central Asia and the adjacent areas into the eleventh century. The Tahirids, the Persian governors of Khurasan for 50 years in the mid-ninth century, were patrons of many great Arabic literary and musical figures, and their own command of Arabic letters, both poetry and prose, was renowned in their day.[25] The Samanids, the Persian rulers of Khurasan and Transoxania in the tenth century, made Bukhara, their administrative capital, a centre of Arabic scholarship. In his Arabic literary anthology the *Yatīmat al-dahr fī mahāsin ahl al-ᶜasr* [The Unique Pearl of the Age Concerning the Praiseworthy Aspects of the People of the Age], the well-known scholar from Nishapur, Abū Mansūr ᶜAbd al-Malik al-Thaᶜālibī (d. 1038), extols Bukhara as 'the focus of splendour, the Kaᶜba of empire, the meeting-place of

24. Krachkovskaya and Krachkovskiy, 1934.
25. Bosworth, 1969.

the unique intellects of the age, the horizon of the literary stars of the world, and the forum for the greatest scholars of the time'.[26]

A constellation of famous scholars and littérateurs lived and worked in the region, producing Arabic works in a range of disciplines. The great traditionist Muhammad b. Ismāᶜīl al-Bukhārī (d. 810) compiled an enormous compilation of *hadīth* known as the *Sahīh*. The Sufi Abū ᶜAbdallāh Muhammad al-Tirmidhī, called al-Hakīm al-Tirmidhī (d. probably between 936 and 938), paved the way for a more expository genre of mystical literature. Scientific investigation was also conducted in Arabic, as can be seen in the works of the astrologer and astronomer Abū Maᶜshar al-Balkhī (d. 886) and the physician and philosopher Ibn Sīnā (Avicenna; *c*. 980–1037). The persistence of Arabic as the language of scholarship into the eleventh century is clear from the career of the polymath al-Bīrūnī (973–1048). Brought up speaking the Iranian language of Khwarazm, he also knew New Persian and used it for poetry but chose to write his treatises on cosmology, history, mathematics and other subjects primarily in Arabic, although parallel Persian versions of certain of his works seem to have appeared almost contemporaneously.[27] (For more on these figures, see Chapter 3 above.) Cultivated men of the time may have used Persian for ordinary conversation, but they preferred Arabic as their literary medium.

Few documents have survived from the first centuries of Arabic rule in Central Asia, but it is possible to trace the evolution of the Arabic language and script there through inscriptions in other media. In the eighth and ninth centuries Merv was a major centre for the production of *tirāz*, the inscribed fabrics manufactured under the auspices of the caliph and made up into robes of honour or bestowed as official gifts. Woven of cotton or *mulham*, a light delicate fabric that combines raw silk warps with heavier cotton wefts, *tirāz* made at Merv have a single line of Arabic embroidered in red or blue silk thread. The text contains good wishes to the reigning ᶜAbbasid caliph, the names of the persons who ordered the piece and who made it, and the date. Dated or datable examples range from 873 to the mid-tenth century.

Although the texts on these *tirāz* fabrics made at Merv follow the standard formula used on *tirāz* made elsewhere in the caliphate, there are significant differences. The texts on the Merv pieces sometimes reflect the distinct political situation. A *mulham* fragment made there in 874, for example, was not ordered in the name of the vizier, as was standard further west, but in the name of the amir Abū Ahmad al-Muwaffaq, the heir-designate and brother of the ᶜAbbasid caliph al-Muᶜtamid (870–92). There are also grammatical distinctions. The phrase *ᶜalā yad[ay]* (under the hand[s] of), used before the name of the factory intendant or supervisor in *tirāz* inscriptions from Egypt, was used before

26. Browne, 1908, pp. 365–6.
27. Lazard, 1963, pp. 58–62.



FIG. 1. Transoxania. Pen-box (1148).
(Photo: © Hermitage/Terebenin.)

the name of the vizier in *tirāz* inscriptions from Merv and other sites in the eastern lands of the caliphate.

The preference for Arabic as the literary language in Central Asia can also be seen in the inscriptions on slip-painted ceramics traditionally associated with the patronage of the Samanids in the late ninth and tenth centuries. The ceramics, mainly dishes and plates measuring up to 45 cm wide, are covered with a thin layer of white clay that served as a support for superb calligraphy



FIG. 2. Transoxania. Detail of the pen-box (1148)
with the inscribed name of Muhammad b. Fadl.
(Photo: © Hermitage/Terebenin.)

painted with a brush. One fragment of a pen-box in the Hermitage Museum in St Petersburg is inscribed with a name, Muhammad b. Fadl, presumably that of its patron or owner (see Figs. 1 and 2). The vast majority of the texts, however, are moralizing aphorisms in Arabic praising the virtues of patience, work, intelligence, knowledge, generosity and the like.[28]

Arabic was also the official language for foundation or commissioning inscriptions on buildings and objects. The tomb of the Samanids, built at Bukhara in the early tenth century, had an Arabic text on the wooden lintel of the eastern door; and the mausoleum known as Arab-Ata at Tim, a village in the mountains overlooking the Zarafshan valley, has a foundation inscription in Arabic with the name of an individual associated with the ᶜAbbasid caliph and the date 977–8. The most famous silk textile to survive from the region, the so-called Shroud of St Josse, used to wrap the bones of a Christian saint in northern France and now in the Louvre in Paris, is also inscribed in Arabic (see below, Chapter 16, Fig. 28 at p. 442). The text woven along the edge of this sumptuous polychrome silk invokes blessings on Abū Mansūr Bakhtakīn. He can be identified as a Samanid general who was put to death by his overlord ᶜAbd al-Malik b. Nūh in 961.

The Arabic used for these inscriptions on Central Asian buildings and objects follows the forms and formulae standard in other parts of the ᶜAbbasid caliphate, but the inscriptions are remarkable for their extraordinary stylistic creativity and innovation. The range of styles and the artists' inventiveness and exuberance surpass those found in contemporary epigraphy from the Islamic lands to the west. In this early period of Muslim rule, Central Asia and the adjacent regions were a focus of inventiveness for writing Arabic script in all media, from manuscripts and the decorative arts to architecture.[29]

The most distinct type of script associated with Central Asia is the interlaced style, in which the bodies and stems of the letters are decorated with knots and plaits (Fig. 3). It is used for the pithy sayings on the slip-painted ceramics as well as inscriptions in other media. Interlacing appears on coins minted for the Samanids at the beginning of the tenth century and must have been an established and accepted script by this point (Fig. 4). It was deemed particularly suitable for inscriptions on buildings constructed of brick. The minaret erected at Tirmidh (modern Termez) in 1032 is a good example. The tall brick shaft decorated in common bond is divided by three bands with Qur'anic texts executed in interlaced Kufic script.[30] Textiles may have been the method of transferring this style westwards, for it also appears on painted and gilded *iqat*-dyed cottons woven in Yemen in the late ninth and tenth centuries.

28. Bol'shakov, 1958.
29. Blair, 1992.
30. Ibid., pp. 13, 109.



FIG. 3. Afrasiab. Ceramic dish (eleventh–twelfth century).
(Photo: © Hermitage/Terebenin.)



FIG. 4. Nishapur. Obverse and reverse of a gold coin (dinar) of Nūh b. Mansūr dated 988. (Photo: Courtesy of M. I. Mochiri.)

Although the most distinctive epigraphic style associated with Central Asia and the adjacent lands, interlaced script was not the only one used in the area at the time. Foliated and floriated styles, in which leaves and flowers grow from the ends or even the middle of letters, are also found. Foliated script is found on the lintel from the tomb of the Samanids at Bukhara, and the long foundation inscription around the mausoleum at Tim is done in an elaborate floriated Kufic, with flowers and palmettes sprouting from an undulating vine scroll.[31]

Another style of script that can be associated with the region is the manuscript hand known by a variety of names ranging from ᶜAbbasid New Style to eastern, Persian, broken or Carmathian Kufic. This script maintains the angular quality associated with Kufic but is more vertical and elongated, with a deliberate contrast between thick and thin strokes. The tops of the letters often end with barbs that slope to the left. This manuscript hand was used over a wide area from the late ninth century until at least the beginning of the thirteenth, but its high point was the eleventh century. A Persian copy of Abū Mansūr Muwaffaq's *Kitāb al-Abniya ᶜan haqā'iq al-adwiya* [Book of the Foundations Concerning the True Essence of Drugs and Medicines], transcribed by ᶜAlī b. Ahmad al-Asadī al-Tūsī (i.e. Asadī Tūsī) in 1084 and now in the Austrian National Library in Vienna, is a fine example. This hand was often used for headings and colophons in manuscripts, as in the signature by al-Bīrūnī in a manuscript dated 1025.

This new style of Kufic script was probably developed in the eastern Islamic lands, as it can be traced in inscriptions in other media from there. The

31. Blair, 1992, pp. 25–9, 47–8.

tirāz inscriptions embroidered at Merv in the late ninth and early tenth centuries already show a distinct style, with tall stems, sloping verticals, and some foliated endings to the letters. Some letters have unusual forms, such as the circular *fā'/qāf* and the triangular *dāl* which resembles a *hā'*. The inscriptions on some Samanid ceramics show the same elongation, bending and stylization seen in this new script.[32] The New Style can also be seen on several cenotaphs from Ghazna published by S. Flury.[33] The tomb of the founder of the Ghaznavid line, Sebüktegin (d. 997), shows a simpler but similarly proportioned style of Kufic. An anonymous cenotaph, attributed to the turn of the twelfth–thirteenth century, is a classic example of this new style of script, and it, like contemporary manuscripts, uses the unusual convention of three dots under the letter to differentiate *sīn* from *shīn*. Many of the monumental inscriptions erected in the area from the eleventh century onwards also have three holes punched in the ends or teeth of the letters.[34]

In addition to the angular Kufic scripts, rounded scripts, often called 'cursive', were also used in Central Asia. Dated examples survive on coins from an early period. A dirham minted at Balkh in 905, for example, has the name of the Abū Dawūdid or Banijūrid governor Ahmad b. Muhammad b. Ahmad written in cursive. Similarly, one issued at Nishapur in 917–18 uses cursive for the name of the Samanid ruler Nasr I b. Ahmad. As elsewhere, cursive hands were probably used for ordinary business correspondence, but the use of cursive on coins, a distinctly conservative medium, shows that they were accepted for official purposes in Central Asia at a very early date. (For these scripts, see Chapter 17 below.)

By the eleventh century, cursive was used for copying Arabic manuscripts. One of the few signed and datable examples is a book on the physical and moral characteristics of the Prophet transcribed at Ghazna for the library of the Ghaznavid amir ᶜAbd al-Rashid (1049–52) and now in the University Library at Leiden. The manuscript is one of the earliest non-Qur'anic texts penned in *naskh* (script), but the ideosyncratic script, which shares some similarities with the New Style script, differs from the proportioned cursive codified by the master calligrapher Ibn al-Bawwāb (d. *c.* 1030) at Baghdad. Moreover, the illumination is not nearly as fine as that used by the Baghdadi scribe for the copy of the Qur'an he transcribed at the ᶜAbbasid capital in 1001 and now in the Chester Beatty Library, Dublin.[35]

Scribes and artists in Central Asia during this early period also delighted in contrasting various styles of Arabic script. This is already clear from coins,

32. Volov, 1966.
33. Flury, 1925.
34. Ibid.; Krachkovskaya, 1949.
35. Stern, 1969.

where the ruler's name is written in cursive to set it off from the rest of the legend and the Qur'anic text written in the traditional Kufic. Ghaznavid monumental inscriptions from the late eleventh and twelfth centuries juxtapose three styles of scripts on one monument. Different styles are often used for different types of text, as for example cursive, foliated Kufic and simple Kufic for Qu'ranic, pious and historical texts respectively.

With the coming of Turkic tribes in the eleventh century, the linguistic balance in Central Asia began to shift. Persian gained in currency, especially for literature, but men of letters worked in both Arabic and Persian. Rashīd al-Dīn Watwāt (d. 1177–8), for example, the outstanding stylist at the court of the Khwarazm Shah Atsïz and his successors, wrote prose and poetry in both languages. Many Arabic words were also incorporated into Persian didactic and literary prose at this time.

Although other languages became standard at court, Arabic remained the predominant language of Muslim religious life into the fifteenth century. Scholars discussed the Qur'an and the *hadīth*, the traditions associated with Muhammad, in Arabic, and the foundation charters of charitable endowments, known in Arabic as *waqf*s, were traditionally written in Arabic as well. Two of the earliest endowments known from Central Asia describe the foundation of a *madrasa* (college for higher instruction in the religious and other sciences) and a hospital by the Karakhanid ruler Abū Ish'āq Ibrahīm b. Nasr Tamghach Bughra Khan in the mid-eleventh century.[36]

The Karakhanid endowments are preserved only in the *shurūt* (conditions; sing. *shart*), the formularies intended to teach judges the terms in which they should draft their writings. One of the earliest deeds to survive is a scroll in the Uzbekistan state archives in Tashkent containing the draft copy of an endowment made in 1299 by a certain ᶜAbd al-Rahīm b. Muhammad b. ᶜAbd Allāh Isfījabī, a local notable and *shaykh* of the Isfijab district on the middle Syr Darya (Jaxartes). The endowment is written in some 270 lines of *riqāᶜ*, the cursive script typically used for chancellery documents. According to the text, the *shaykh* bought an entire village with the surrounding well-irrigated lands some 25 km north-west of Bukhara, withdrew it from legal civil circulation, and made it a charitable endowment to raise money for the maintenance of two new mosques and an older shrine dedicated to Khwāja Khamīna. The choice of site is not surprising, for Bukhara in the post-Mongol period was the most important centre of Sufism in Central Asia, and the shrine around the tomb of the mystic and poet Sayf al-Dīn Bākharzī (d. 1261) was one of the most visited sites and richly endowed properties there.

The scroll also shows the growing importance of vernacular languages for legal matters in Central Asia, for some time before 1661 the endowment

36. Khadr, 1967.

was translated into Persian. The translation is written in *nastaʿlīq*, the sloping style of script developed in the fifteenth century for writing Persian.[37]

Arabic was also used for writing scientific works throughout this period. Whereas Bukhara was the focus for Sufism, Samarkand was the centre of science, particularly in the fifteenth century when the Timurid prince Ulugh Beg (1394–1449) built a large observatory there. The most famous scholar to work there was the mathematician and astronomer Ghiyāth al-Dīn Jamshīd b. Masʿūd al-Kāshī (d. 1429). He wrote in both Arabic and Persian, although the *Zīj-i Gūrkhānī*, his well-known Gurkhanid ephemeris, was composed in Persian (see above, Chapters 6 and 7).

Arabic also remained the standard language on coins, although words and phrases in other languages were sometimes added in Arabic script. Timur introduced a new and larger silver coin that provided more room for inscriptions, but the legend and script copied earlier types from Iran. Ulugh Beg's coins maintained the traditional obverse, with the Muslim profession of faith written in square Kufic in the centre surrounded by the names of the first four Orthodox caliphs written in *naskh*. The reverse was more unusual and shows the mixture of languages in the area. The words were all written in Arabic script around a triangle of circles that was Timur's sign (*tamghā*). The legend contained a phrase of Turkish words imitating a Mongol construction and the name of the mint and the date in Arabic.

Arabic was also used for inscriptions on objects and buildings until the fifteenth century. It was the standard language not only for Qur'anic verses and *hadīth*, but also for *duʿā* (pl. *adʿiya*), the petitionary prayers invoking God's blessing on the owner that were often inscribed on objects, particularly metalware. Over the course of time, the list of requests in these supplicatory prayers grew steadily, until a single inscription could include as many as 25 or 30 nouns, often arranged in rhyming pairs or phrases. Arabic also continued to be used for most foundation or commissioning inscriptions. These inscriptions were set up as foils to poetic texts, which were composed in Persian.

A jug made by Habīb Allāh b. ʿAlī Bahārjānī in 1462, probably at Herat, and now in the Victoria and Albert Museum, London (no. 943-1886), shows how various texts in different languages and scripts were juxtaposed on objects made for the Timurid rulers of Central Asia. A band around the neck in *thuluth* contains a supplicatory prayer in Arabic invoking for its owner happiness, well-being, life as long as a pigeon coos, lasting glory with no humiliation in it, and an auspicious fate until Judgement Day. There are two other Arabic inscriptions in *naskh* under the base: one contains another supplicatory prayer invoking glory, auspicious fate, good fortune, happiness, well-being and divine favour; the other contains the signature of the artist and the date. These easily readable

37. Arends, Khalidov and Chekhovich, 1969.

and well-spaced inscriptions in Arabic can be contrasted to four bands around the body of the jug with cartouches containing Persian verses by Hāfiz about wine-drinking. The Persian verses can be distinguished from the Arabic texts by style as well as language, for the poetry is written in a more cramped *naskh* hand, with words and phrases suspended on the diagonal.

The tombs of the Shah-i Zinda, the vast necropolis outside old Samarkand, show the range of languages and sources used in inscriptions on Timurid buildings. Although some of the tombs are inscribed with Persian verses, the foundation inscriptions are generally in Arabic. Arabic was also used for the Qur'anic verses and traditions ascribed to the Prophet and to his cousin and son-in-law, ᶜAli b. Abi Tālib. The eclectic range of Arabic material includes traditions attributed to Socrates that decorate the façade of the tomb of Shirin Biki Āqā erected in 1385, and Arabic is also used for other pious phrases (see Chapter 18 below).[38]

The Arabic inscriptions on Timurid buildings are written in a variety of styles and techniques. Foundation inscriptions are usually written in large *thuluth* letters in a band that frames the portal or surmounts the door. Different colours are used to set the inscriptions off from the background. On the tomb of Shirin Biki Āqā, for example, the foundation inscription over the doorway is written in gold letters, while the traditions of Socrates around the portal are written in white, both contrasting against the dark blue ground. Most of the words are written along the base line, but a few are set in the middle of the band above the bodies of the lower letters. The tails of these letters in the upper tier are extended backwards to form long horizontal strokes that serve to divide the inscription band into two tiers. Sometimes a smaller second inscription is inserted at the top of the tall stems of the *thuluth* letters, as in the framing inscription around the portal, which has pious phrases written in Kufic letters in gold set at the tops of the stems of the foundation text. Frame bands or cartouches set off the inscriptions from the rest of the decorative revetment of floral and geometric designs.

Arabic writing was also used to cover large wall surfaces. Sacred names and short pious phrases were written in the *hazārbāf* or *bannā'ī* technique, in which glazed bricks are inserted into the unglazed bricks set in common bond. A good example is provided by the walls of the Gur-i Mir (or Gur Amir), the complex of buildings in Samarkand containing the tomb of Timur, a *madrasa* and a *khānaqāh* (hospice for Sufis). These repeated phrases may have served as a counterpart to the repetition of sacred words or phrases in the Sufi ritual of *dhikr* (see below, Chapter 19, p. 611). The technique was not limited to religious buildings, for the façade and portal of Timur's gigantic palace at Shahr-i Sabz were similarly revetted with sacred names and phrases in Arabic. Effect

38. Shishkin, 1970.

was apparently more important than accuracy, for even simple phrases are misspelled. The purpose of this brick revetment with large Arabic words and phrases was to drench the architecture with the word of God.[39]

Finally, it should be noted that Arabic apparently never ceased to be a spoken language in certain restricted areas of Khurasan and Central Asia. From medieval Islamic historical sources we know of the presence there of groups of what were presumably nomadic or semi-nomadic Arabs, just as there were similar groups scattered across Khurasan and Afghanistan of Kurds and Baluch whose communities have survived until modern times. The last Samanid amir, Ismāᶜīl al-Muntasir, was killed by nomadic Arabs in the desert near Merv in 1005 (see Volume IV, Part One, p. 79) and contingents of Arabs from such groups were recruited into the multi-ethnic armies of the Ghaznavids and other eastern Islamic powers. We know only of the putative use of the Arabic language by these groups through the survival until today of two pockets of Arabic speech in what is now Uzbekistan, at Bukhara and in the Kashka Darya valley, plus a further pocket of speakers in northern Afghanistan in the modern provinces of Balkh and Guzgan.[40]

39. Golombek and Wilber, 1988.
40. Versteegh, 1997, pp. 215–17.

14

THE LINGUISTIC SCIENCES

V. A. Kapranov and Ž. Vesel

Part One

LEXICOGRAPHY

(V. A. Kapranov)

Texts of Middle Persian (Pahlavi) lexicography

The eighth and ninth centuries witnessed the transition in Iran from Middle Persian or Pahlavi literature, which was written in a language no longer in everyday use, to a literature rooted in the language of the majority of people in Iran, New Persian. Pahlavi literature, which reflected the Zoroastrian religion and philosophy, was henceforth preserved only among the small Zoroastrian communities of Iran and India.

Among the several dozen texts of Pahlavi literature of various genres which have survived, there are two works of lexicography: the *Frahang-i ōim-ēvak*, an Avestan–Pahlavi dictionary, and the *Frahang-i pahlavīk*, a dictionary of Aramaic ideograms (heterograms). It is not known when these dictionaries were compiled; however, estimates vary between the eighth and the tenth century or even later.[1]

The *Frahang-i ōim-ēvak* contains some 1,000 Avestan words with their translations in Pahlavi and consists of 27 chapters *(bābs)*. In most chapters the words and expressions are given in alphabetical order, while in the others they follow a thematic presentation. Thus Chapter I consists of numerals and adjectives; Chapter II gives the gender and number, singular, dual and plural of pronouns, verbs, nouns and adjectives; Chapter III lists the parts of the body;

1. Jamaspji, 1867; Reichelt, 1900–1; Junker, 1912; 1955.

Chapter IV covers relative pronouns; Chapters V–XXIV follow the order of the Avestan alphabet; and Chapters XXV–XXVII contain groups of words arranged thematically, including groups expressing religious and moral ideas and units for the measurement of distance and time.

The second dictionary, the *Frahang-i pahlavīk*, is concerned with the explanation of ideograms.[2] It consists of 31 chapters arranged thematically. The themes of the chapters are extremely varied: words designating deities, heavenly bodies, the earth, plants, domestic livestock and livestock products, birds, wild animals, parts of the body, social groups, money and precious metals, chronology, etc. Some chapters contain words for different parts of speech (verbs, pronouns, adjectives, numerals, auxiliaries).

It is worth noting the useful combination in the *Frahang-i ōim-ēvak* of the actual lexical section, both alphabetical and thematic, and the grammar. The work goes beyond the scope of a lexicon, becoming a tool for the study of the language as a whole at both lexical and grammatical levels, following a particular learning system. The *Frahang-i pahlavīk* combines the thematic approach with a vocabulary section arranged by parts of speech. The lexicographic principles applied in both dictionaries testify to the authors' high level of linguistic knowledge for their day.

Once New Persian had become established as a literary language, the vocabulary of Pahlavi found an outlet in poetic works, whence it found its way into dictionaries in which it was designated as archaic. Pahlavi historical terms and archaisms were chiefly employed in heroic epics such as the *Shāh-nāma* [Book of Kings]. But Pahlavi vocabulary was not only reflected in dictionaries with references to terms 'in the Pahlavi language' (*bā zabān-i pahlavī*): separate glossaries, mostly of modest dimensions, were also compiled in the subsequent period, providing a rendering of Pahlavi and Avestan words in Arabic script.

The lexicography of New Persian: the beginnings

The growth of Persian lexicography was governed by two main factors: the development of literature in the language and the linguistic situation in the various regions where it was implanted. Two main regions took shape in the ninth and tenth centuries in which New Persian operated as a literary language:

2. The ideograms or heterograms were Aramaic borrowings in Pahlavi. Designated by Pahlavi letters, these Aramaic words were replaced when read out by Pahlavi words. Ideograms were known as *huzvarish* (explanation, interpretation) in Pahlavi. For example, the form *myā* (Aramaic = 'water') was read as *āb* (= 'water'). Only the Aramaic root of the word was rendered in the text; morphological elements with a grammatical significance (suffixes, endings) were indicated by means of additional letters. Words did not have to be rendered by ideograms: the same ideas could be rendered phonetically, using Pahlavi words.

(a) the areas to the east of the Caspian (Transoxania and Khurasan; and (b) Fars and the adjoining areas to the north.

As early as the later eleventh century, a third New Persian-speaking region began to take shape in the vast expanses of northern India. All of these historical changes had an increasing impact on the New Persian language, leading to the growth of regional features affecting *inter alia* its vocabulary, which provided the most sensitive gauge of changes in society and the linguistic situation. By the end of the fifteenth century a large number of regional differences and innovations, lexical, terminological, semantic, phonetic and phraseological, had already accumulated, although only a certain proportion of these changes were reflected in the literature and consequently in the lexicography.

The lexical content of New Persian provides evidence of linguistic and cultural interaction with other peoples. This evidence consists of the vast stream of loan words from Arabic, which led to the establishment of a separate Arabo–Persian lexicography in the eleventh century; the Sogdian, Greek, Turkic, Indian, etc. influences in Transoxania; and the element of Turkic and Indian loan words in Afghanistan and northern India.

The oldest recorded explanatory dictionary of New Persian appears to be the *Risāla* [Epistle, Treatise] by Abū Hafs-i Sughdī, which has not survived but is cited in later dictionaries. It is not possible to draw any very precise conclusions regarding the date at which his work was compiled, but it seems that the dictionary (or fragments and excerpts thereof) survived until the sixteenth or the seventeenth century and that, in all likelihood, it was compiled in the tenth century although old sources express the view that it was compiled at an earlier date.

The *Tafāsīr fī lughat al-furs* [Commentaries on the Persian Language] were written by the famous poet Qatrān b. Mansūr in Azerbaijan *c.* 1045–50, and this was the second Persian dictionary after that of Abū Hafs-i Sughdī. Again, it has not been preserved, but information about it is contained in the prefaces to the *Lughat-i furs* [The Persian Language] by Asadī Tūsī and the *Sihāh al-furs* [Sound Aspects of the Persian (Language)] by Muhammad b. Hindūshāh Nakhichevānī (see below). It apparently contained some 300 words.

THE *LUGHAT-I FURS*

The *Lughat-i furs*, the first extant defining dictionary (*farhang*), was written *c.* 1065 by Abū Mansūr ʿAlī b. Ahmad Asadī Tūsī, who, according to sometimes contradictory accounts, was born at the beginning of the second decade of the eleventh century in the town of Tus. Hence he was a native of the region where New Persian was widely used as a literary language before it spread to Fars and western Persia. We know that, as an adult, he lived in Azerbaijan at the court of the ruler of Nakhichevan, Abū Dulaf-i Dayrānī, to whom Asadī dedicated his epic poem, the *Garshāsp-nāma* [Epic of Garshāsp]. He was also

the author of five *munāzaras* (disputatory poems), the first example of this genre in Persian literature. Several manuscripts of the *Lughat-i furs* have been preserved, and there are a total of 2,291 head words in these: the primary copy contains 1,099 words and the remaining 1,192 words are found in the other copies.[3] The explanations provided for these words are accompanied by examples from early New Persian poets (see below). The vocabulary is extremely varied, as are the genres and themes of the poetry providing examples of usage. That used in the satirical verse is, at times, extremely popular in character, including erotic elements. The local, dialectal or regional character of some words is indicated, hence we learn that *yāb tīr buvad bā zabān-i samarqandī* ('*yāb* is an arrow in the language of Samarkand'). Individual words are also associated with the regions of Khurasan, Balkh, Merv (*bā zabān-i marghazī*) and even Azerbaijan. The colloquial and dialectal character of many of the words explained in the dictionary is also clear from the large number of phonetic variants with the same or similar meanings: thus, *āstim* (sleeve) instead of *āstin*, *chināl* (plane tree) instead of *chinār*, etc.

Like all the later dictionaries which provide explanations of poetic vocabulary, the *Lughat-i furs* includes a certain number of proper names and geographic terms plus a range of terms relating to trades or professions, which gives it a certain encyclopedic content. Of particular interest are some 20 proper names (including the masculine names *Manqalūs*, *Vadanush*, *Bakhsilus*, etc.) and 8 geographic names of Greek origin (including *Shamus*, 'an island in Greece' = Samos?), presented together with poetic citations from ʿUnsurī's *Wāmiq u ʿAdhrā'*.[4] Such materials provide evidence of the interaction of Greek and Iranian cultures and the continued vitality of Hellenistic traditions, particularly in north-eastern Khurasan.[5] The dictionary also provides explanations of a number of words which were obsolete at the time when it was compiled, some of them described by the author as Pahlavi (*bā zabān-i pahlavī*). The examples of such words are taken from *qasīdas* (odes) and epics, which generally made use of an archaic vocabulary. The continuity of Pahlavi and New Persian was thus reflected in literature and poetry and hence in lexicography.

Among those borrowings which had already been assimilated were several words of Arabic origin which had lost their original form or meaning and were, apparently, no longer perceived as loan words, e.g. *ma'kūl* (glutton), cf. Arabic *ma'kūl* (food, foodstuffs); *lavna* (rouge), cf. Arabic *lawn* (colour), etc.

3. Our subsequent treatment is based on the edition by Iqbāl, 1319/1940, prepared on the basis of four manuscript copies, one of which contains a preface by the actual author, Asadi Tūsī. On the early stage of Persian lexicography, see Nafisī, 1311/1933; *EI*², 'Kāmūs. 2. Persian lexicography'. A specialized work on Asadī Tūsī's dictionary is found in Kapranov, 1964, p. 214.
4. On this poem and the freely treated Hellenistic novel, see Berthel's, 1960, pp. 313–16.
5. The proper names and geographic designations of Greek origin from the poem *Wāmiq u ʿAdhrā'* are quoted in late (thirteenth–fourteenth century) additions to the *Lughat-i furs*.

The dictionary also contains a good number of Sogdian loan words, such as *jurghat* (sour milk), *bulandin* (door frame), *palik* (a type of shoe), *basaghda* (prepared), *fagh* (idol), etc.; and words from Khwarazmian, such as *chak* (bill of exchange, cheque); from Greek, such as *yakand* (ruby, sapphire); from Turkic languages, such as *chakhmakh* (purse), *kapān* (balance), etc.; and from Hindi, such as *bihār* (Buddhist temple), *mandal* (magic circle), *pahand* (trap for antelope), *chandan* (sandal), *chukri* (rhubarb), *lak* (red paint), etc. Possibly these words were no longer seen as borrowings by Asadī Tūsī. Their use in various types of verse, including verse depicting scenes from everyday life, also points in that direction.

The illustrative material in the *Lughat-i furs* is of great value, involving quotations from more than 100 poets of the tenth and early eleventh centuries, such as Rūdakī, Abū Shakūr Balkhī, Maʿrūfī Balkhī, Abu 'l-Mathal from Bukhara, Tayān from Merv, Munjik from Termez, Labībī from Khurasan, etc.; the largest number of quotations are from Rūdakī, followed by ʿUnsurī, Firdawsī, Abū Shakūr Balkhī and Munjik. Just one example of each is provided from over 40 poets; most of these are not referred to in any other source and their names are known only from the *Lughat-i furs*. Several poems, the texts of which have not survived, are cited, such as *Kalīla wa-Dimna* [Kalila and Dimna] and the *Sindbād-nāma* [Book of Sindbad] by Rūdakī, the didactic poem the *Āfarīn-nāma* [Book of Celebration] by Abū Shakūr Balkhī, and from the above-mentioned poem by ʿUnsurī, *Wāmiq u ʿAdhrā'*. Many of the examples are taken from satirical verse, and there are also extracts which are lyrical in character. A comparatively small proportion are taken from *qasīda*s.

In his brief preface, Asadī Tūsī wrote that 'our aim in presenting these Persian words was the following: I saw poets who were educated but not well acquainted with the vocabulary of the Persian language. The poet Qatrān had produced a book [a dictionary] but the words there were mostly known.' In this connection, we should recall a statement by Nāsir-i Khusraw, in his *Safar-nāma* [Travel Account], that Qatrān wrote fine verse but did not have a good command of the Persian language. Both Nāsir-i Khusraw and Asadī Tūsī also implied that the poets of Transoxania and Khurasan could not be considered as connoisseurs of Persian unless they had mastered certain of its lexical features.

The *Lughat-i furs* may be considered as the pioneer work in New Persian lexicography, though it is possible that its foundations were laid much earlier, for example in the *Risāla* of Abū Hafs-i Sughdī. Judging by the quotations from it surviving in seventeenth-century dictionaries, the *Risāla* seems to have had a similar structure to the one later employed in the *Lughat-i furs*: a word from the Persian language; a commentary on the word; and an example/quotation from a work of poetry.

Although no defining dictionaries of the Persian language have survived from the three centuries or so after the *Lughat-i furs*, lexicographic work apparently

continued in the form of additions to manuscript copies of the *Lughat-i furs* by authors who were anonymous. Thus according to the edition by Iqbāl, the basic manuscript, which is the most reliable, contains 1,099 words, but one manuscript contains a large number of marginal additions, which were apparently inserted as late as the fourteenth century, amounting to over 600 word units, most of which do not occur in later dictionaries. They represent various levels of colloquial and dialectal vocabulary and even, apparently, jargon and slang. Thus new expanded and refashioned versions of Asadī Tūsī's dictionary appeared over time which developed into practically independent lexicographic works with Asadī Tūsī still appearing as their author. Later, ostensibly independent works from the fourteenth and sixteenth centuries have also survived, but they are essentially variants of the *Lughat-i furs*, for example the *Miʿyār-i Jamālī* [Standard/Measure for Jamāl] by Muhammad Fakhrī Isfahānī (1344), the *Farhang-nāma* [Dictionary] by Husayn Wafā'ī (1527) and the *Tuhfat al-ahbāb* [Present for the Loved Ones] by Hāfiz Ubāhī (1530).

Subsequent developments

If we consider the contents and structure of the *Lughat-i furs* as an initial framework to which alterations and additions were subsequently made, we can then study the significance and characteristics of each of the later dictionaries in terms of their contribution to: (a) the structural principles and method of presentation of lexical material and illustrations thereof; (b) the new lexical layers which they contain; and (c) other aspects and features, in other words, their contribution to the development and introduction of new types of lexicographic works.

The *Farhang-i Fakhr-i Qawwās*, also known as the *Panjbakhshī* (because it consisted of five parts), was composed by Fakhr al-Dīn Mubārak Ghaznawī whose sobriquet was Qawwās or Kamangar (Bow-maker). Compiled in India in 1301, it is the second oldest defining dictionary, after the *Lughat-i furs*, to have survived to the present day and the first Persian dictionary constructed on a thematic basis. It consists of five *bakhsh*s (parts) in which the words relate to: the sky and heavenly bodies; the earth; the vegetable kingdom; the animal world; and mankind. Examples are provided from the verse of Rūdakī, Daqīqī, Firdawsī, Asadī Tūsī, Farrukhī, ʿUnsurī and other poets. The dictionary was published in Tehran in 1974 on the basis of the sole surviving manuscript copy, which is preserved in India. With Fakhr al-Dīn's work, Persian lexicography received a fresh impetus in India, with a new use of the thematic principle, although this had already been used in Pahlavi lexicography and in commentaries on the Avestan lexis. Several other thematic dictionaries for Persian were subsequently compiled in India.

The *Sihāh al-furs* was written at Tabriz in 1327–8 by Shams al-Dīn

Muhammad b. Fakhr al-Dīn Hindūshāh Nakhichevānī, who was also the author of a famed manual for secretaries, the *Dastūr al-kātib fī taᶜyīn-i marātib* [Secretary's Rule for Determining Official Designations/Ranks]. Nakhichevānī notes in the preface that he has drawn on previous works of lexicography and has also included words not listed in Asadī Tūsī's work, supplementing this last by words and quotations of poetry from later poets.

The *Sihāh al-furs* provides explanations of 2,300 words with examples drawn from the works of 144 poets of Transoxania, Khurasan and Azerbaijan who lived later than the eleventh century; thus, compared with the *Lughat-i furs*, it significantly expands the time frame and range of vocabulary and the number of poets that it quotes.

As with Asadī Tūsī's work and with later dictionaries, the *Sihāh al-furs* is arranged under the last letter of the word, followed by the first and second ones, the arrangement employed in earlier Arabic lexicography, starting with the *Sihāh al-ᶜarabiyya* [Sound Aspects of the Arabic (Language)], written in 1001 by al-Jawharī. Rhyme dictionaries (similar to contemporary 'last-letter' dictionaries) were used by poets and made consultation easier for readers. As Muhammad b. Hindūshāh Nakhichevānī states in his preface, the structure of the *Sihāh al-furs* was borrowed from al-Jawharī's work, as was its title *Sihāh* (reliable), indicating the common purpose of the two dictionaries: the provision of explanations of reliable vocabulary, in this case, in the Persian language.[6]

With regard to the complex linguistic situation in a region like Azerbaijan, one should mention the Persian–Azeri Turkish dictionary the *Sihāh al-ᶜajam* [Sound Aspects of the Persian (Language)] by Fakhr al-Dīn Hindūshāh b. Sanjar b. ᶜAbd Allāh Nakhichevānī (d. 1330), father of Muhammad b. Hindūshāh, which has four parts: a Persian–Azeri dictionary containing more than 4,000 words from both languages; a brief outline of Persian grammar in Azeri; an outline of Persian grammar in Arabic; and a small dictionary of unusual and loan words in Persian. The introduction and some observations are written in Arabic.[7] The established position in Azerbaijan of the three languages, Azeri Turkish, Persian and Arabic, is thus clearly indicated. Most importantly, the *Sihāh al-ᶜajam* provides the first descriptions of Persian grammar, albeit on a bilingual basis.

The *Miᶜyār-i Jamālī*, compiled in Shiraz in 1344, was the fourth part of the *Miᶜyār-i Jamālī va miftāh-i Abū Is'hāqī* [Standard/Measure for Jamāl and the Key for Abū Is'hāq], the first three parts of which were concerned with metrics, a treatise on rhyme, and rhetoric. Its author, Muhammad Fakhrī Isfahānī, dedicated his work to his patron (the patron also of the poet Hāfiz), the Injū'id ruler of Fars, Jamāl al-Dīn Abū Is'hāq (1343–53).

6. Zaromazade, 1970, p. 46.
7. Ibid., pp. 45–6, 50.

A comparison of the *Miʿyār-i Jamālī* with the *Lughat-i furs* reveals that the great majority of the vocabulary items and the comments in the former were taken from the latter, and with the identical arrangement, i.e. under the last letter.[8] There are three main differences, however. First, some of the examples from the *Lughat-i furs* are replaced by verse passages in the style of odes (dedicated to Abū Is'hāq), with the exception of some taken from the works of certain other poets. As stated in the preface, examples of the author's own work are provided to make clearer the form of the (head) words defined (all of the words defined in the extracts from odes are rhyming). In many cases, this could not be done by providing examples in the form of single lines from the works of earlier authors (the works in question are not identified). Second, definitions of some 1,580 words are provided in the *Miʿyār-i Jamālī* as against 1,658 words in most of the copies of the *Lughat-i furs* edited by Iqbāl. And, third, some 30 words are listed with the observation *maʿrūf* (generally known); almost all of these words are to be found in the *Lughat-i furs*. The conclusion which suggests itself in this connection is that all of the words, with the exception of those which were 'generally known', presented some difficulty for the Persians of the fourteenth century. This confirms the thesis that Asadī Tūsī had explained the vocabulary of the poets of Transoxania and Khurasan which people in western Iran found difficult to understand, and that only a tiny proportion of that vocabulary was generally understood by the fourteenth century. Thus the listing of difficult words in the *Miʿyār-i Jamālī* helped to 'establish' it in western Iran as a part of the vocabulary of Persian in general use throughout the area covered by the language.[9]

Persian lexicography in India

The *Farhang-i zabāngūya va jahānpūya* [Dictionary for Talking and Investigating the World] was compiled in India by Badr al-Dīn Ibrāhīmī at an unknown date but not later than 1433. It has seven parts or *bakhsh*s, hence its alternative designation of *haftbakhshī* (consisting of seven parts). The *bakhsh*s

8. This was pointed out by Salemann, 1888, p. 430.

9. Thus the question as to whether the Persian of Central Asia (the modern Tajik language), the Persian of Afghanistan (the modern Dari) and the Persian of Iran constitute a single language at the present time is one which has its roots, in the area of vocabulary, in the tenth–eleventh century with the expansion of the Persian of Transoxania to the territory of northern India, starting in the eleventh century. Lexicographers of a later period – the sixteenth to the eighteenth century – noted many differences in phonetics, vocabulary, semantics and phraseology between the three main branches of the Persian language: that of Transoxania (or Turan), that of Iran, and 'Indian Persian' (*fārsī-yi hindī* or *fārsī-yi hindūstanī*). A differentiated approach or differential method of this type is still valid.

were divided into *gūnas* (subsections) on the basis of the first letters of the words.

The first and largest *bakhsh* contains a vocabulary of Persian words in general use as well as geographic denominations, proper names, ethnic concepts, obsolete words from the *Shāh-nāma*, etc. The second contains difficult words in Persian. The third lists verbal infinitives, all simple. The fourth lists Arabic words used in Persian. The fifth contains a variety of words, Arabic and 'Nabataean' (i.e. Aramaic), which had entered the Persian language. The sixth consists of Rūmī ('Roman', 'Byzantine') words, including Greek, Latin and Syrian ones, relating particularly to Christianity as well as to ancient Greece and Byzantium. The seventh has everyday Turkic, i.e. Chaghatay words. The dictionary has a very small number of examples in verse, most of which are anonymous, and the total number of word units for which explanations are provided is around 5,170. Describing the various aspects of the *Zabāngūya*, the dictionary's editor, S. I. Bayevskiy, observes that it is the first attempt in Persian lexicography to produce a multilingual dictionary.[10]

Indeed, the *Zabāngūya* is representative of the new Indian school of lexicography. Its multilingual nature is explained by the linguistic situation in northern India where, in addition to the literary language, Persian, Turkish also occupied a strong position, having arrived with migrants from Transoxania from Ghaznavid and Ghurid times onwards. It continued to be practised and to receive a certain amount of support from the dynasties of Turkish ethnic origin in the Delhi Sultanate and, from the beginning of the sixteenth century, from the Turco-Mongol line of Bābur.[11] At the same time, these two languages were used in an environment of Indian languages, chiefly Hindi. This explains the inclusion of Indian words in the dictionary, amounting to more than 100 items, sometimes given as equivalents or synonyms. A rather more theoretical interest in multilingualism may also perhaps explain the inclusion of so-called 'Rūmī' words. Thus the Persian language and lexicography, having arrived on Indian soil, became part of an interaction between different languages and cultures in the complex linguistic conditions there. At the same time, Persian was to retain for several centuries its role as a link between different peoples and ethnic groups, a language of government and of communication between the peoples of northern India.[12]

In recording foreign loan words, the author consciously or unconsciously drew attention to the fact that his own native language was absorbing vocabulary

10. Ibrāhīm, 1974, pp. 61–2. On the role of the *Zabāngūya* and other early *farhangs* in literary life as a special type of scientific and scholarly literature, see ibid., pp. 58–67.
11. One of the Chaghatay–Persian dictionaries, compiled in the fifteenth century, was the *Badā'īᶜ al-lughāt* [Wonders of Languages] of Tāliᶜ Imāmī Harātī (ed. A. K. Borovkov, 1961).
12. Some aspects of the language situation from the eleventh to the nineteenth century in India are mentioned in Kapranov, 1987, pp. 12–27.

from various languages and that it was open to different languages and cultures. This development represented a major departure from the lexicography of the previous period, the purpose of which in defining dictionaries (of poetry) had been an endeavour to produce only an indigenous Persian vocabulary.

The *Adāt al-fudalā'* [Instrument/Tool for the Best People] was compiled in India in 1419 by Qādikhān Badr Muhammad Dihlawī, known under the pseudonym of Dhārwāl. In his preface he mentions the dictionaries of which he has made use: the *Farhang-nāma* by Fakhr-i Qawwās; the *Risāla al-Nāsir*; the *Risālat-i Asadī Tūsī*; the *Dastūr al-afādil*; the *Lisān al shuᶜarā'*; and the *Fawā'id Burhānī*. He also notes that he has added to the material in those dictionaries various words and expressions from the poetry of Firdawsī, Khāqānī, Anwarī, Faryābī, Saᶜdī and others. But that is not all the author could have said about the methodology employed in compiling the dictionary. The *Adāt al-fudalā'* has two parts: the first provides definitions of individual words in the alphabetical order of their first and second letters; the second lists difficult words and poetic expressions in the order of their first and last letters. In his preface, the author also includes a small excursus on grammar and vocabulary which, to judge by the dictionaries which have survived up to the present day, is the first effort of its kind in the Persian language.[13]

The *Sharaf-nāma-yi Ahmad-i Manērī* [Book of the Nobility of Ahmad-i Manērī], or *Farhang-i Ibrāhīmī* [Dictionary Compiled by Ibrāhīm], was compiled in India in 1473–4 by Ibrāhīm Qawām Farūqī in honour of the famed Sufi *shaykh* from Bihar, Sharaf al-Dīn Ahmad Manērī. The preface contains lexico-grammatical information. The vocabulary is arranged by order of the first and last letters, also taking others into account, and the examples come from the verse of poets from Firdawsī to Hāfiz. An interesting feature of the dictionary is the inclusion of Chaghatay Turkic words at the end of sections, which points to the survival of that language in India. It confirms what the *Zabāngūya* had earlier shown, that the dictionaries had gone beyond monolingualism.[14]

The *Mujmal al-ᶜajam* [Comprehensive Work on the Persian (Language)] was compiled in India in 1494 by ᶜĀsim Shuᶜaybī ᶜAbdūsī. In the preface, the author explains that has collected words from Persian, Pahlavi, 'Rūmī', Turkish and other languages needed for an understanding of works of poetry. His dictionary is arranged by order of the first and last letters of the words. Examples are provided in the form of verse but with no indication as to the author concerned. The Indian equivalents of the words are often given in the definitions. This dictionary was drawn on by the author of the *Farhang-i Jahāngīrī* [Dictionary Dedicated to Jahāngīr], who referred to it as the *Farhang-i ᶜĀsimī*.[15]

13. Storey, 1984, pp. 11–12.
14. Ibid., pp. 13–15.
15. Ibid., p. 15.

General trends

It is a function of lexicography to ensure that the literary language remains comprehensible and accessible to readers in the future. The comprehensibility of literature is a relative matter for a speech community even at the time of the creation of a literary work, and it declines in proportion to the period of time which has since elapsed. The best way of maintaining the highest possible level of comprehensibility is to compile dictionaries reflecting what the lexicographer considers to be the current state of the literary language and the literary works of his contemporaries, since he is in a position reliably to ascertain the present meaning of the vocabulary which they contain. However, there are few instances in Persian lexicography during the period in question of the compiling of dictionaries of contemporary language and 'synchronous' literary works. Judging by the example of the *Lughat-i furs*, definitions were provided of vocabulary from works created 50–100 years earlier, that is, after an interval of time during which the degree of comprehensibility had already been considerably reduced.

In later works of lexicography, in spite of the addition of vocabulary from literary works which were more or less contemporary for the lexicographers, the comprehensibility of the poetic vocabulary of the tenth and early eleventh centuries treated by Asadī Tūsī remained roughly the same, that is to say, at the level found in the *Lughat-i furs*. Accordingly, not only the level of comprehensibility but also the level of obscurity of a certain proportion of the vocabulary in the *Lughat-i furs* remained essentially unchanged in later works of lexicography. As manuscripts were transcribed, the reliability of the recorded material also declined in quantitative terms, especially if one considers that the oldest copies of the *Lughat-i furs* to have survived date from the fourteenth century, that is to say, three centuries after its compilation. Some of the obscure and dubious vocabulary in the *Lughat-i furs* was simply ignored at a later date and left out of the dictionary (together with obscure examples), so that a part of the lexical store of the language and a part of the literary heritage were lost.

The lexicography of the Persian literary language in the tenth to the fifteenth century was essentially concerned with poetry: only definitions of difficult poetic vocabulary were provided in such dictionaries. Consequently, no descriptions were produced of the varied genres of prose literature, although the volume of such literature grew to enormous proportions in the period from the tenth to the end of the fifteenth century. Although a certain part of the prose vocabulary, chiefly terminology, was reflected in encyclopedias and lexicons covering particular fields (see Part Two below), another part simply disappeared from the lexicographer's field of vision. With the development of prose literature (or even of belles-lettres alone), lexicographers were increasingly

unable to cope with the enormous amount of linguistic material. Only very small quantities of prose vocabulary were included in the defining dictionaries of the next period, from the sixteenth to the nineteenth century, something which may be judged from the very limited number of prose quotations used as examples.

For that reason alone, defining dictionaries of the Persian language cannot be described as comprehensive. But even taking only works of poetry into consideration, they generally left out difficult or rare loan words, taken mainly from Arabic. The first Arabic–Persian dictionary, the *Kitāb al-Masādir* [Book of Verbal Nouns] compiled by Husayn b. Ahmad Zawzanī, dates from the eleventh century but it only provides definitions of Arabic *masdar*s, or verbal nouns.

In the specific linguistic and social conditions of India, departures from the monolingual framework were quite natural. This may have been the specific purpose of the *Zabāngūya*, which dealt with both 'indigenous' Persian vocabulary and borrowings from a variety of other languages (see above). Subsequently, Turkic vocabulary was featured in special subsections in the *Sharaf-nāma*. Indian words also began to be included in dictionaries of the 'Indian' school, mostly as equivalents in the definitions. Subsequently, from the sixteenth to the eighteenth century, the process expanded significantly with the explanation of Indian lexical borrowings in the Persian of India.

Thus the main trend in Persian lexicography from the tenth to the fifteenth century was the compilation of defining dictionaries of poetry. Poetry was the most important literary genre, performing a whole series of functions, one of which was the treatment of subjects of topical interest and current events, which were dealt with in various poetic styles and genres.

The production of lexicographic works demanded extensive knowledge and a high degree of professionalism. As a rule, therefore, the authors of poetic dictionaries were themselves poets and men of letters, although only two of them, Qatrān and Asadī Tūsī, were widely known poets significant for the history of Persian poetry. The others have their place rather in the history of Persian lexicography. The preparation of such works was seen in ruling circles as a matter of cultural importance and therefore received much encouragement from important patrons and rulers; thus at a later period, the well-known *Farhang-i Jahāngīrī* [Dictionary of Jahāngīr] (1608) was compiled by order of Jahāngīr, the great Mughal emperor and son of Akbar. Moreover, by emphasizing the value of poetry, lexicography catered to the spiritual needs of the many peoples who came into contact with Persian culture in which great prestige accrued to its poetry.

Thus in spite of the emphasis placed on poetry in the *farhang*s from the eleventh to the fifteenth century, their vocabulary constitutes a major resource for efforts to reconstruct the history of the material and spiritual culture of the

Iranian-speaking peoples.[16] Aside from poetic dictionaries, lexicographic literature of the most varied types and genres was produced between the tenth and the fifteenth century: bilingual Arabic–Persian lexicography expanded greatly from the eleventh century, while Persian–Turkish and Turkish–Persian lexicography developed during the fifteenth century. Separate categories were constituted by specialist and general/universal encyclopedias, dictionaries for individual works and authors, at times very fragmentary, and also *sharhs* (commentaries) on individual works. Commentaries were a category of lexicographic work which seem to have first appeared in the thirteenth or the fourteenth century: various sorts of glossaries and interpretations, including Avestan–Pahlavi and later Pahlavi (in Arabic script), the so-called *Lughat-i pahlavī*, dictionaries of loan words, professional quasi-lexical *risālas* (treatises), etc. *Hāshiyas* (glosses) in the margins of books were very common. These commentaries and glosses differed greatly from normal dictionaries; they discussed and interpreted the content of individual words, expressions and phrases and works taken as a whole in the spirit of a particular system of ideas.

Such interpretations and infusions of ideas are not found, as a rule, in standard dictionaries (*lughats, farhangs*). Therefore, an idea of the various areas of language which existed, and the extent to which the needs and aspirations of the various classes and social groups among the Persian-speaking peoples were met, can only be obtained from a consideration of all types of lexicographic works and all types of dictionaries taken together. This part of the chapter has looked at just one type of Persian-language dictionary in the relevant period, but each of the other types of dictionary deserves a special investigation of its own.

Part Two

ENCYCLOPEDIAS

(Ž. Vesel)

One frequently quoted early Islamic encyclopedia was written in Central Asia at the height of Samanid power. The *Mafātīh al-ᶜulūm* [Keys of the Sciences] by the little-known Abū ᶜAbd Allāh Muhammad b. Ahmad al-Khwārazmī was composed in Arabic between 976 and 991, probably shortly after 977, for Abū al-Hasan al-ᶜUtbī, the vizier of the Samanid Nūh II b. Mansūr. This work, intended as a manual for secretaries, is in fact a classified vocabulary with

16. The encyclopedic function, and the presence of a large specialized vocabulary and special terminology in medieval *farhangs*, are understood and illustrated by Bayevskiy, 1989, pp. 124–44, Ch. 5.

explanations, of outstanding interest for its classification of knowledge and its lexicographic data. In the introduction the author underlines the need to study difficult terms and makes a statement on the division of the sciences, which he separates into 'religious (*ᶜulūm al-shar'iyya*) and allied Arabic sciences' on the one hand and 'non-Arabic sciences (*ᶜulūm al-ᶜajam*), of Greeks and of other peoples', on the other.[17] The book is thus divided into two *maqālas* (discourses) listing technical terms and explaining them.

The first discourse contains subdivided chapters on:

1. Jurisprudence (*fiqh*): principles; purifications; prayers; fasting; alms (including a section on weights and measures); pilgrimage (*hajj*); commercial affairs; marriage and divorce; (. . .) inheritance; special legal problems.
2. Scholastic theology (*kalām*): its vocabulary as well as information on various religious sects, etc.
3. Grammar (*nahw*): general; the *Kitāb al-ᶜAyn* [Book Beginning with the Letter ᶜAyn] of Khalil b. Ahmad; the noun; the verb, etc.
4. Sciences of the secretarial art (*kitāba*) concerning registers; taxes; the financial department; the postal and intelligence service; surveys for fiscal purposes; exploitation of water sources; correspondence.
5. Poetry and prosody (*al-shiᶜr wa 'l-ᶜarūd*).
6. History (*akhbār*): kings of Iran; caliphs; kings of Yemen; kings of Greece and Byzantium; technical vocabulary related to history, etc.

The second discourse deals with the following topics:

1. Philosophy (*falsafa*): (a) its divisions: theoretical, i.e. logic, physics (medicine, meteorology, the three kingdoms of nature, alchemy), metaphysics, mathematics (the *quadrivium* and mechanics); and practical, i.e. moral, domestic economy, politics; (b) metaphysics; and (c) special terms in philosophy.
2. Logic (*mantiq*): the *Isagoge*; *Categories*; *On Interpretation*; *Prior and Posterior*; *Analytics*; *Topics*; *Sophistical Refutations*; *Rhetorics*; and *Poetics*.
3. Medicine (*tibb*): anatomy; diseases; dietetics; pharmacology (simple and compound drugs); weights and measures; special points (*nawādir*).
4. Arithmetic (*arithmātīqī*), including Indian reckoning, finger/mental reckoning (*jummal*) and algebra.
5. Geometry (*handasa*): general; lines; surfaces; figures.
6. Astronomy (*ᶜilm al-nujūm*): fixed stars and planets; cosmography and geography; astrology; scientific instruments (the astrolabe, planes and spheres, quadrant, sextant, celestial globe, etc.).
7. Music (*mūsīqī*): instruments; musical theory; metres.
8. Mechanics (*hiyal*): ingenious devices (automata and water machines).
9. Alchemy (*kīmīyā'*).[18]

17. Bosworth, 1963, pp. 100–1.
18. Ibid., pp. 101–11; 1969; 1990.

Another encyclopedia for secretaries composed before al-Khwārazmī's one but in the same geographic area, the *Jawāmi*ᶜ *al-*ᶜ*ulūm* [Comprehensive Work on the Sciences] of Shaᶜyā Ibn Farīghūn, is of a different nature. Written in Arabic between 938 and 955 for a local ruler of Chaghaniyan in the upper Oxus valley, Abū ᶜAlī Muhtāj, a commander and vassal of the Samanids, it does not seem to have been known to al-Khwārazmī. Its author, Ibn Farīghūn, was a pupil of the famous geographer and protégé of the Samanids, Abū Zayd al-Balkhī (850–934), and he may conceivably have been the author of the anonymous Persian treatise on geography, the *Hudūd al-*ᶜ*ālam* [The Limits of the World], written in 982–3 for the Farīghūnid ruler of Guzgan (in what is now northern Afghanistan), another Samanid vassal.

A facsimile of Ibn Farīghūn's encyclopedia has been published, based on one of the three manuscripts known, copied in 1006, in good calligraphy and frequently displaying the contents of chapters under the form of genealogical 'trees'. The book is divided into two *maqāla*s (discourses), roughly covering the following subjects: Part One: Arabic grammar; secretarial sciences (correspondence, calligraphy, arithmetic, geometry, etc.); religious duties and moral qualities/vices and virtues. Part Two: politics/art of government; ethics, worship and faith, philosophical sciences: logic, astronomy, occult sciences, alchemy, etc. The complete index of subjects is given at the end of the manuscript; the text seems to be a kind of *aide-mémoire* for the subdivisions of each science with a stress on secretarial and governmental arts and qualities, and with an addition concerning foreign sciences in the last part of the book. This latter section of Ibn Farīghūn's work might have been influenced by a treatise of Abū Zayd al-Balkhī, the *Kitāb Aqsām al-*ᶜ*ulūm* [Book of the Divisions of the Sciences], today lost.[19]

Both al-Khwārazmī's and Ibn Farīghūn's encyclopedias are important documents on Iranian court culture at the crucial moment when the 'foreign' sciences, known from Syriac and Arabic translations done under the ᶜAbbasid caliphs, were being integrated into Islamic scholarship. The authors' aim is pragmatic; they systematize knowledge circulating in the society of their time, but they treat it very differently: al-Khwārazmī provides a classified vocabulary with explanations; Ibn Farīghūn, a survey of subjects obviously representative of a secretary's knowledge within the courtly ambience of the time. If the content is more loosely classified by Ibn Farīghūn, it is done clearly by al-Khwārazmī, who draws a sharp distinction between Islamic and foreign sciences; this was to be the main approach adopted by subsequent encyclopedists in the Iranian world.

Under the same Nūh II b. Mansūr, whose vizier was the dedicatee of al-Khwārazmī's encyclopedia, the youthful Ibn Sīnā or Avicenna (*c.* 980–1037)

19. Minorsky, 1962, pp. 189–96; Khedīvjām, 1350/1972, pp. 148–62.

studied in Bukhara, first with several private masters and then in the library of the Samanid court. The details on this period are known from his autobiography,[20] the period which was decisive for Ibn Sīnā's future works. He says: 'So when I reached the age of eighteen I was finished with all of these sciences; at that time I had a better memory for learning, but today my knowledge is more mature; otherwise it is the same; nothing new has come to me since,' dictating this to his pupil Abū ʿUbayd al-Juzjānī in Gurgan in 1012, when Ibn Sīnā was 32 years old.[21] Even if his encyclopedic works on philosophy – *al-Shifāʾ* [Book of Healing], *al-Najāt* [Book of Salvation] and the Persian *Dānish-nāma-yi ʿAlāʾī* [Book of Knowledge for ʿAlā al-Dawla][22] – and his medical compendium *al-Qānūn fi ʾl-tibb*[23] were written later, during Ibn Sīnā's stay in northern and central Persia, the knowledge acquired in his youth in Central Asia undoubtedly contributed to these later compositions.

To quote some other examples of encyclopedias specializing in one particular scientific field and written in the Central Asian regions in the pre-Mongol period, let us recall Abū Rayhān al-Bīrūnī's *al-Qānūn al-Masʿūdī* on Ptolemaic astronomy and his *Kitāb al-Tafhīm li-awāʾil sināʿat al-tanjīm* [Book of Instruction (Concerning) the Basic Principles of the Science of Astronomy], as well as the *Dhakhīra-yi Khwārazmshāhī* [Treasury of the Khwarazm Shah] of Ismāʿīl Gurgānī on medicine. These specialized compendia furnished precise and extensive material for the redaction of the encyclopedias in a strict sense – aiming to collect all the sciences known at one time, either as a reference book or as a programme of teaching – among which the *Jāmiʿ al-ʿulūm* [Comprehensive Work on the Sciences] of the Ashʿarite theologian Fakhr al-Dīn al-Rāzī (1148–1209) is an outstanding example.[24]

Mentioned by al-Juwaynī, the *Jāmiʿ al-ʿulūm* was written in Persian in 1179, after al-Rāzī's three years' stay in Khwarazm and before his *al-Munāzarāt* [Controversies] (*c.* 1184–6). Dedicated to the Khwarazm Shah ʿAlāʾ al-Dīn Tekish, in an enlarged version bearing the title of the *Kitāb al-Sittīnī* [Book of Sixty Sciences] or *Hadāʾiq al-anwār fi haqāʾiq al-asrār* [The Gardens of Lights Concerning the Truths of Secrets], the book was apparently composed in 3 different versions, the most complete being the one on 60 sciences.[25] As al-Rāzī did not know which science would interest the ruler, he says in his introduction that he gathered as much as possible of the rational (*ʿaqlī*) and traditional (*naqlī*) sciences and treated each from the point of view of basic principles

20. Gohlman, 1974, pp. 17–41.
21. Ibid., pp. 38–9.
22. See Storey, 1977, pp. 347–8.
23. See on this, above, Chapter 12, pp. 307ff.
24. See on these works and their authors, above, Chapter 3, pp. 112–13, 131, Chapter 5, Chapter 7, pp. 198–9 and Chapter 12, pp. 308, 310–11.
25. See Storey, 1977, pp. 351–3.

(*usūl*, sing. *asl*) and later applications (*furū*ᶜ, sing. *far*ᶜ); his treatment is in fact very elaborate, since he explains for each science three 'obvious principles' (*usūl al-zāhir*), three 'difficult principles' (*usūl al-mushkil*) and three 'verifications' (*imtihānāt*), the latter formed as questions. His encyclopedia starts with the 'traditional' sciences, known as *ᶜulūm-i awākhir* (sciences of the 'later' scholars, i.e. of the Islamic period): IA: theology/scholastics (*kalām*), principles of jurisprudence, polemics (*jadal*), controversial issues in *fiqh*, the legal schools (*ᶜilm al-madhāhib*), inheritance, wills and testaments, commentary, semantics and readings of the Qur'an, traditions; IB: names of illustrious men, history, military expeditions; IC: grammar, including syntax and morphology, etymology, proverbs, prosody, rhyme, rhetoric, poetry.

Then come the 'rational' or 'philosophical' sciences, known also as *ᶜulūm-i awā'il* (sciences of the 'earlier' scholars, i.e. sciences based in classical Greek and Hellenistic antiquity), which are the following: [IIA: (1)] logic; [(2)] physics, oneiromancy, physiognomy, medicine, anatomy, pharmacology, the properties of things (*ᶜilm al-khawāss*), alchemy, mineralogy, talismans, agriculture, techniques of cleansing (*qal*ᶜ*-i āthār)*, veterinary medicine, falconry; [(3)] geometry, land measuring (*misāha*), statics/weights and measures (*ᶜilm-i athqāl*), engines of war, Indian arithmetic, mental arithmetic, algebra, arithmetic,[26] magic squares, optics, music;[27] astronomy/astrology; geomancy; [(4)] metaphysics. [IIB]: religions and sects; morals; politics;[28] domestic economy; the future life (gained by performing religious duties); prayers; ethics of rulers; and chess.

Al-Rāzi's work is the first Persian encyclopedia in the modern sense of the term, aiming to collect and summarize all the knowledge of the time. Nevertheless, it is also representative of the habits of systematizing knowledge at that period (for the repertory of *naqlī* and *ᶜaqlī* sciences) as well as of the author's personal interests. His *Jāmi*ᶜ *al-ᶜulūm* was to be imitated by at least three later authors: Muhammad Fādil Qādi Samarqandi in his *Jawāhir al-ᶜulūmī Humāyūnī* [Gems of Sciences Composed for Humāyūn], written in 1555 for the Mughal emperor, covering 120 sciences; Husayn ᶜAqili Rustamdāri, a Shiᶜite scholar, in his *Riyād al-abrār* [The Gardens of the Pious], composed in 1571, also called the *Kitāb al-Tis*ᶜ*īnī* [Book of Ninety Sciences];[29] and Muhammad Astarābādi Akhbāri (d. *c.* 1624) in his *Dānish-nāma-yi Shāhī* [Royal Book of Knowledge]. The large number of extant manuscripts of al-Rāzi's *Jāmi*ᶜ *al-ᶜulūm*[30] prove the popularity of this book.

For the Mongol and Timurid period, two texts pertaining to the encyclopedic genre with Central Asian connections must be mentioned. First, there is

26. Brentjes, 1988–9, pp. 77–106.
27. Pourjavady, 1372/1993.
28. Fouchécour, 1986, pp. 425–9.
29. Storey, 1977, pp. 358–9.
30. Ibid., pp. 351–3.

the Persian translation of the *Rasā'il Ikhwān al-Safā'* [Epistles of the (Ismaᶜili) 'Brotherhood of Purity'], composed in tenth-century Basra, entitled the *Mujmal al-hikma* [Collection of Wisdom], and obviously based on the much-abridged Arabic version of the *Rasā'il* bearing the same title. It contains: (a) philosophical sciences (*ᶜulūm-i hikmī yā hikmiyyāt*): arithmetic; geometry; astronomy; music; geography, etc.; ethics; logic; mathematics; (b) natural philosophy/physics (*tabīᶜiyyāt*): matter and form; place; movement; time; *De Caelo* and *De Mundo*; generation and corruption; meteorology; the three kingdoms of nature; man; etc.; (c) psychology (*nafsāniyyāt*); and (d) metaphysics (*ilāhiyyāt*). There exist several copies of the translation, the oldest known being that of 1268–9. Some later copies bear the mention 'written at the request of Tīmūr Gūrkhān', an assertion which must be treated with caution. The author is unknown (Hājjī Khalīfa indicates that he was from Khurasan) and the claim that the book was commissioned by Timur still awaits clear evidence.[31]

The second text from this later period is the *Dānish-nāma-yi jahān* [Book of Knowledge of the World], composed by Ghiyāth al-Dīn ᶜAlī Isfahānī in 1465–6 in Badakhshan, for Abu 'l-Fat'h Sultān Mahmūd Ghāzī, the great-grandson of Timur. This book describes, through an elaborate construction proceeding from 10 chapters (*fusūl*) to 20 sub-chapters (*usūl*) and 4 conclusions (*natā'ij*) with an epilogue (*khātima*), the world in the usual descending order, proper to cosmographies of the time: general principles of physics; the sky; the rotation of the sky; elements; simple and compound substances; meteorology; constellations; volcanoes; springs, canals, wells; mineralogy; botany; zoology; man; anatomy. The work seems to be a typical compilation of high-level scientific sources of the Peripatetic (Aristotelian) tradition, Isfahānī having further written on falconry, astrology, *hurūf* (numerology) and other subjects.[32]

Thus the genre of the encyclopedia is quite well represented in Islamic Central Asia, first by encyclopedias for secretaries in Arabic, and subsequently by Persian compilations of a high quality; both genres are typical of the traditional court interests in the region.

31. Storey, 1977, pp. 350–1; Dānish-Pazhūh and Afshār (eds.), 1375/1996.
32. Storey, 1977, pp. 357–8.

15

ORAL TRADITION AND THE LITERARY HERITAGE

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Part One
PERSIAN LITERATURE

(A. Afsahzod)

Literature in Arabic

By the year 700, Arabic had become the official language of the caliphate and state business was increasingly conducted in it. In 742, in Khurasan and Transoxania, a knowledge of Arabic was indispensable and obligatory for civil servants. The result was that in the course of the first two centuries, the Islamic literature of the Iranian peoples was created mostly in the Arabic language. However, the great role played by the Iranians in the development of literature, science, philosophy and Arab culture as a whole involved not only their introduction of a purely Iranian current into general Arab civilization, but also their contribution to the appearance of Arabic prose and philosophy by making translations of certain Greek, Indian and especially ancient Iranian works a part of Islamic cultural life. There were also many literary and scholarly works written in Arabic by authors of Iranian origin such as ᶜAbd Allāh Ibn al-Muqaffaᶜ (724–59), Ibn Khurradādhbih (820–*c.* 912), al-Tabarī (d. 923), Abū Nasr Muhammad al-Fārābī (d. 950), Abū Mansūr ᶜAbd al-Malik al-Thaᶜālibī (d. 1038), Abū Rayhān al-Bīrūnī (973–1048) and Ibn Sīnā (Avicenna) (*c.* 980–1037), with pure literature, above all poetry, coming from such poets of Iranian origin as Bashshār b. Burd (714–84), Abū Nuwās (762–813) and others.

The first Iranian to make a significant contribution to the development of Arabic literature was Ibn al-Muqaffaᶜ. He was born in Gor (Firuzabad) to a Zoroastrian family and, having automatically received a knowledge of Pahlavi (Middle Persian) and of the Zoroastrian faith from his father, went on to study

Arabic in Basra. From the age of 20 he was occupied with translating from Pahlavi into Arabic such works as the *Khwadāy-nāmag* [Book of Lords], *Āyīn-nāma*, *Mazdak-nāma*, *Kitāb al-Tāj* and *Kalīla wa-Dimna*. To the pen of Ibn al-Muqaffaᶜ also belong such works as the *Risālat al-sahāba* (on the structure of the ruling institution), *al-Adab al-kabīr* (on politics and the rules of communication), *al-Adab al-saghīr* (on morals and ethics) and other writings.[1]

The Arabic works of Ibn al-Muqaffaᶜ, in virtuoso style and form, served for centuries as examples for imitation and study for many writers. Another poet of Iranian origin who wrote verse in Arabic was Isfahan-born Ziyād al-ᶜAjam. Bashshār b. Burd, a descendant of Iranians from Tukharistan, vaunted his Persian ancestry. In his poems he sang of the bravery, courage and heroism of his ancestors, describing slave girls, musicians and women of the street. Bashshār b. Burd called himself a *zindīq* (free-thinker); he resorted to hyperbole, describing wine and banqueting, was free in his speech and imitated madness, and yet his lucid, enchanting comparisons and metaphors and the profound philosophical content of his works testify to his intelligence.

Literature in Arabic continued to function in Khurasan and Transoxania well after the appearance of Persian literature in the native tongue. To begin with, there were poets who wrote in both Arabic and Persian. Of the 415 authors whose names are listed in al-Thaᶜālibī's anthology the *Yatīmat al-dahr fī mahāsin ahl al-ᶜasr* [The Unique Pearl of the Age Concerning the Praiseworthy Aspects of the People of the Age], 124 lived in Khurasan and Transoxania during the rule of the Samanids (875–1005) and at the beginning of the eleventh century, writing either in Arabic or in both Arabic and Persian.[2]

During the rule of the Buyids and the Ziyarids, literature developed mostly in Arabic. In the areas subject to them, literature in Persian only appeared at the beginning of the eleventh century. The contemporaries of Rūdakī (d. *c.* 941) – the poets Murādī, Musᶜabī, Shāshī, Husayn b. al-Marwarrūdī, Abū Shakūr al-Balkhī, Abū Sulaymān al-Khattābī, Abū Bakr al-Khwārazmī (author of an excellent *dīwān* and fine Arabic epistles), Abū ᶜAlī al-Iskafī, Abu 'l-Hasan ᶜAhajī and Abu 'l-Hātim Warrāq, a bilingual poet – occupy a prominent place in the development and rise of Arabic literature. However, among them special note should be made of Abu 'l-Fat'h al-Bustī (971–1009), the author of *dīwān*s in Persian and Arabic and translations into Arabic from Persian of some poems by Daqīqī and poems from Abū Shakūr al-Balkhī's *Āfarīn-nāma* [Book of Celebration] (see below).

Ibn Sīnā was not only a great physician and philosopher but also made a significant contribution to the development and rise of literature in Arabic, with his scientific and philosophical works, including poetic *qasīda*s (odes) and

1. Latham, 1990, pp. 48–77.
2. Zand, 1967, pp. 161–4; Abdulloev, 1984, pp. 40–57.

so on. Of particular interest are his *urjūzas*, poems in the *rajaz* metre, which deal with the deontology of medicine, the soul and ethics in general.

In areas of Iranian culture, the tradition of Arabic belles-lettres continued to exist up to the fifteenth century. Thus the Arabic *qasīdas* of Sa^cdī Shīrāzī (d. 1292) are worthy of attention. The writings of such authors as those mentioned above are among the best examples of Arabic literature, making the works in Arabic of the Iranian peoples a significant part of that literature as a whole.

Literature in Persian

By the end of the eighth and the beginning of the ninth century, bilingual poets appear, with verses in Arabic and Persian. One of the first poetic fragments tells of the destruction of Samarkand. Still earlier, the inhabitants of Balkh had subjected to derision, in poetic form, the Arab governor of Khurasan, Asad b. ^cAbd Allāh, who had been sent in 726 to put down a popular rebellion in Khuttalan (now a region of Tajikistan) but was forced to return after suffering a defeat. For a long time afterwards, children are said to have sung these satirical verses in the streets of Balkh.

The ninth century saw the appearance of poets in Persian such as Abū Hafs Sughdī, Muhammad Wasīf, Hanzala Bādghīsī (d. 835), Bassām Kurd, Shahīd al-Balkhī, Mahmūd Warrāq (d. 836), Fīrūz Mashriqī (d. 896), Abū Sālih Gurgānī, Muhammad b. Mukhallad and Mas^cūd Marwazī. Only fragments of these poets' works have come down to us, although Hanzala Bādghīsī is said to have been the author of a *dīwān*.[3]

The tenth century saw the first period of the flowering of classical New Persian literature, its opening being connected with Rūdakī and its end crowned by the creator of the *Shāh-nāma* [Book of Kings] epic, Firdawsī (d. *c.* 1020). Although few examples of the writings of most tenth-century poets have come down to us, with the exception of Daqīqī and Firdawsī, they seem to have been prolific, and Rūdakī and several other poets allegedly had their own *dīwāns*.[4]

The leader and mentor of all the writers of the tenth century was Rūdakī, from one of the remote mountain villages of Panjikent (presently in Tajikistan). He found his way to the palace of the Samanids at Bukhara, where he became especially famous as a court poet during the rule of Nasr I b. Ahmad (914–42). He wrote highly artistic verse in the *sahl mumtani^c* (ingenious simplicity) manner, which was smooth and easily comprehensible; his themes included the praise of pure, untainted love, the description of natural beauty in all its freshness and

3. Lazard, 1964, Vol. 1, pp. 10 et seq.
4. On the importance of poetry, and especially lyric poetry, as the supreme expression of the Persian literary genius, see Yarshater (ed.), 1988, pp. 20–32.

the grandeur, reason and moral foundations of humankind. *Qasīdas* (odes), *ghazals* (lyric poetry), elegies, *qitᶜas* (fragments), *rubāᶜiyyāt* (quatrains; sing. *rubāᶜī*), *musammats* (stanzaic poems) and *mathnawīs* (poems in couplets), with the creation of his own tradition, all developed in Rūdakī's work. He wote a didactic poem, *Kalīla wa-Dimna*, which was 12,000 *bayts* (couplets) in length, and also a *qasīda* entitled *Mādar-i may* [The Mother of Wine]. His *dīwān* became widely known, as did his *mathnawī*, *The Circles of the Sun*, his *Sindbād-nāma* and other works. On the evidence of Asadī Tūsī, a poet and lexicographer of the eleventh century and a connoisseur of Rūdakī's work, the great poet's legacy consisted of 180,000 *bayts*. His work gave an impetus to the development of Persian poetry, and for about 50 years Rūdakī was the leader of the poetic pleiad at the Samanid court, but at the end of his life he was driven from it, became blind and died in poverty.[5]

Shahīd al-Balkhī (d. 937), a friend and colleague of Rūdakī's, wrote poetry in both Arabic and Persian and was also an excellent calligrapher. Many of the popular writers of this period, such as Abū Shakūr al-Balkhī, Kisā'ī Marwazī, Daqīqī, Murādī, Khusrawānī, Abu 'l-Hasan Gurgānī, Tāhir Chaghānī, Munjik Tirmidhī, Abu 'l-Fat'h al-Bustī and Maysarī, came from various parts of the eastern Iranian world and were attracted to Bukhara and the Samanid court.[6]

The first known woman poet to write in Persian was Rābiᶜa (*fl.* under the Ghaznavids?), daughter of Kaᶜb, born in Balkh and renowned for her beauty, learning, quick wit and poetic talent. While still young, she was killed by her brother because of her love for his slave Bektāsh. Her tragic fate inspired many later writers, including Farīd al-Dīn ᶜAttār (thirteenth century), Ridā-Qulī Khan Hidāyat (nineteenth century) and some Persian and Afghan writers of our own time. Rābiᶜa was mainly a virtuoso of love poetry after the manner of Rūdakī's lyrical poetry.[7]

A significant part of tenth-century Persian literature is made up of exhortations, including instruction in good manners, the advocation of justice and humanity, the exaltation of art, science and knowledge, the glorification of wisdom and the hymning of friendship; these themes are particularly characteristic of the poetry of Rūdakī and his contemporaries.

Abū Shakūr al-Balkhī was apparently in the vanguard of literature at this time. Born in Balkh in 915, he came to maturity in Bukhara and died some time in the 960s; he was a disciple and close friend of Rūdakī's. Of his literary legacy, there have unfortunately come down to us only a few scattered lyrical fragments, isolated couplets from two lost *mathnawīs* and part of an *Āfarīn-nāma*. This is a poem of a didactic character, of which only about 300 couplets have

5. Browne, 1906–20, Vol. 1, pp. 15–17, 355–6, 455–8; Rypka et al., 1968, pp. 144–5; Moayyad, in Yarshater (ed.), 1988, pp. 122–4.
6. Browne, 1906–20, Vol. 1, pp. 143–4; Lazard, 1964, Vol. 1, pp. 20–1, 62–70.
7. Moayyad, in Yarshater (ed.), 1988, pp. 125–7.

survived, in which al-Balkhī extols learning and art and the human longing for a knowledge of good and of truth, praises shyness, modesty, honour, conscience, boldness, courage and patience, along with the ability to keep secrets and preserve friendship, and denounces ignorance, greed, envy and deceit.[8]

Another important poet of the tenth century was Abū Mansūr Muhammad Daqīqī (931–78), whose birthplace is uncertain. He considered himself a disciple of Rūdakī and Shahīd al-Balkhī. He started by serving at the court of the rulers of Chaghaniyan; later, in Bukhara, he composed at the demand of the Amir Nūh II b. Mansūr (977–97) a *dastān* (heroic poem) of 1,000 couplets about Gushtasp, one of the heroes of the Iranian national epic; Firdawsī subsequently included these verses in his own work. They describe the rule of Gushtasp, the appearance of Zoroaster, and the wars between Gushtasp and Arjasp, ruler of Turan (Daqīqī locates his Turan in a vague 'China'); he eventually falls victim to the intrigues of enemies and is murdered by his own slave.[9]

The collecting of stories and legends about the reigns of the ancient Iranian rulers and their systematic arrangements, culminating in the writing of the *Shāh-nāmas*, must have responded to certain spiritual and social needs of the time. In 957 several pieces of older epic literature were compiled, by order of the Samanid commander Abū Mansūr Muhammad ᶜAbd al-Razzāq, into the *Shāh-nāma* known as that of Abū Mansūr. In 963 Abu 'l-Mu'ayyad al-Balkhī, and three years later, Masᶜūd Marwazī, each wrote a *Shāh-nāma.* The initiative taken by Daqīqī here was a significant step along this path, opening up the way for Firdawsī.

The most highly developed poetic genre was the *qasīda*. Its contents were mainly panegyric, but sometimes included philosophy, a complaint, the account of some experience, etc. So far as we know, the founder of this genre in Persian literature was Rūdakī, but he was also the first to renounce praise as the sole content of the *qasīda*. His follower was Majd al-Dīn Abu 'l-Hasan Marwazī (953–1049), who, having attained maturity, wrote *qasīdas* essentially on philosophical, ethical and medical subjects. The *ghazal* developed as a gentle lyrical genre, very close to music and usually performed with a musical accompaniment. At this time, the masters of such poetry – Rūdakī, Shahīd, Daqīqī and others – used as themes for their *ghazals* the portrayal of love and depictions of spring and of life's delights.

The greatest national epic of the Iranian people is of course the *Shāh-nāma* of Abu 'l-Qāsim Firdawsī, the first version of which was completed by the author in 994. Firdawsī was born *c.* 930 in the district of Tus, to a family of

8. Lazard, 1964, Vol. 1, p. 27–30, 94–126; Rypka et al., 1968, p. 144.
9. Browne, 1906–20, Vol. 1, pp. 459–62; Lazard, 1964, Vol. 1, pp. 32–6, 136–62; Rypka et al., 1968, pp. 144–5, 153–5.

dihqāns (landowners), and died *c.* 1020. The theme of the *Shāh-nāma* embraces the history of the reigns, the legendary events and the fates of 50 Iranian rulers, from Kayūmarth to the last of the Sasanians. The epic deals with Iranian conceptions of the discovery of fire, the working of metals and the emergence of agriculture; with the appearance of the prophets Zoroaster, Mani and Mazdak; with the struggle of the forces of good, under the leadership of Ahura Mazdā, against the powers of evil, led by Ahriman, and the fight of the blacksmith Kāva with Zahāk, who tried to destroy the entire human race on earth; with the origin and adoption of the national feasts Nawrūz, Sada and Mihragān; and so forth.[10]

From the end of the tenth century to the first quarter of the thirteenth century – that is, until the Mongol conquest – literary circles emerged and disappeared at various provincial courts, such as Ghazna, under the patronage of Sultan Mahmūd and his descendants; the title 'Prince of Poets' or laureate was created for ʿUnsurī by Mahmūd. Significant literary circles also appeared in other cities, under the patronage of local princes and governors, including those at Merv, Samarkand, Urgench, Isfahan, Nishapur, Tabriz, Khujand and as far as Lahore in north-western India.[11]

The literature of the eleventh and twelfth centuries continued the attempts at the simplification of language begun by Rūdakī and his circle. This eventually resulted in the emergence of a common literary language understood in Transoxania and the Iranian lands, the eastern Caucasus and many parts of the Indian subcontinent, in time, penetrating also to Anatolia. The poetic genres of the tenth century now developed in form and content, as did the prose of the eleventh and twelfth centuries. However, service at court often ruined literary talents. An example of the apparent irreconcilability of true talent and the court milieu is seen in the work of Awhad al-Dīn Anwarī (1090–1175), who is regarded as a master of the ode and whose output is reflected in his *dīwān* of 15,000 *bayts*. After over 30 years at court, he grew tired of the intrigues and rivalries and renounced state service and court poetry; he then exchanged panegyrics for caustic satire and criticism, its barbs turned against those whose praises he had earlier sung. At the same time, he wrote a famous ode, *The Tears of Khurasan*, reflecting the tragic events of 1153, the invasion of the Turkish Oghuz and their pillaging of the towns of Khurasan, and expressing the theme of the passing of Iranian grandeur and splendour.[12]

10. Browne, 1906–20, Vol. 2, pp. 129–48; Rypka et al., 1968, pp. 155–62; Levy, 1969, pp. 64–80; Hanaway, in Yarshater (ed.), 1988, pp. 96–104; Banani, in Yarshater (ed.), 1988, pp. 109–19.
11. On the role of the local courts of Khurasan and Transoxania in the efflorescence of Persian poetry at this time, see Clinton, in Yarshater (ed.), 1988, pp. 75 et seq., and on the lyric poetry of the Ghaznavid court specifically, see Rypka et al.; 1968, pp. 172–7; Moayyad, in Yarshater (ed.), 1988, pp. 127–32.
12. Browne, 1906–20, Vol. 2, pp. 364–91; Rypka et al., 1968, pp. 197–9.

To Abū Mansūr ʿAli Asadi Tūsi (eleventh century) goes the credit of creating, within the form of the *qasīda*, a special genre called *munāzara* (disputatory poem), i.e. tenson. Five *munāzaras* have been preserved: *The Debate of Day and Night, The Debate of Arab and ʿAjam, The Debate of the Bow and the Spear, The Debate of the Zoroastrian and the Muslim* and *The Debate of Sky and Earth*. The *munāzara* is made up of questions and answers, the author in this context having a greater advantage than his opponent. The form had existed in ancient classical literature, and it now became widespread, attaining perfection in the fifteenth century.[13]

In the eleventh and twelfth centuries almost all poets composed *rubāʿiyyāt*, this laconic form often reflecting wise speech, philosophic thought, the flame of love, the essence of being, the precepts of Sufism and so on. The high point of *rubāʿī* composition in Persian literature was reached in the work of ʿUmar Khayyām (*c.* 1048–1123). Born in Nishapur to the family of a tent-maker (*khayyām*), he received his primary education in his native town, then moved to Balkh. From 1066 to 1070 he lived in Samarkand, from 1070 to 1074 in Bukhara and from 1074 to 1092 in Isfahan, where he occupied himself with scientific work (see Chapter 7 above).[14]

ʿAmʿaq Bukhārī (d. 1147) and Sūzani (d. 1173) are rightly regarded as the masters of satire, characterized by such motifs as the denunciation of ignorance, wrathfulness, conceit, envy, malice, greed, usury, evilness of temperament and other qualities of the human spirit. Another poet, Adib Sābir Tirmidhī, likewise complained, in a well-worn vein, that in his intrigue-ridden time there was no nobility or kindness, courage or humaneness left.

A major feature of eleventh- and twelfth-century literature was the rise of court poetry, essentially embodied in *qasīdas*. Zahir Faryābi (1156–1201) considered this the best poetic genre, even though court poetry and the highly developed *qasīdas* were limited in theme and content and never went beyond the conventional framework of glorifying courage and splendour.

The *mathnawī* remained a leading literary genre at this time, but now with a basically lyrical and romantic character, revolving round the hero's amorous adventures. The content of ʿUnsurī's poem *Wāmiq u ʿAdhrā'* was taken from the history of ancient Greece. Other long poems like ʿAyyūqī's *Warqa u Gulshāh* (2,100 *bayts*) and Fakhr al-Dīn Gurgānī's *Wīs u Rāmīn* describe the customs, history and way of life of the ancient Persians. The theme of *Yūsuf u Zulaykhā*, by ʿAmʿaq, was taken from the Old Testament and the Qur'an. All these poems are in the *mutaqārib* metre, that is, that of the *Shāh-nāma*. Certain themes of European stories and poems, such as the story of Tristram and Isolde, resemble

13. Browne, 1906–20, Vol. 2, pp. 148–52; Rypka et al., 1968, pp. 164–5.
14. On ʿUmar Khayyām as a *rubāʿī* writer, see Levy, 1969, pp. 35–42; Elwell-Sutton, in Yarshater (ed.), 1988, pp. 147–60.

the subject of Gurgānī's *Wīs u Rāmīn*, though this is probably fortuitous; the latter poem involves a tragic love story with shades of satire and humour.[15]

In the eleventh and twelfth centuries a new form of poetry appeared, dealing with morality, religion and philosophy. The best examples of this kind of poem are perhaps the *Hadīqat al-haqīqa* [The Garden of Reality] of Sanā'ī and the *Mahzan al-asrār* [The Treasury of Secrets] of Nizāmī Ganja'ī. Literature with Sufi themes emerged under the influence of Arabic Sufi literature, involving brief tales of a moralistic intent, *ghazals* and especially *rubā*ᶜ*iyyāt* and prose *munājāt* (prayers and hymns). The *shaykh* of Mayhana in Khurasan, Abū Saᶜid b. Abi 'l-Khayr (967–1049), employed *rubā*ᶜ*iyyāt* and *dubaytīs* (quatrains in vocal music) with Sufi themes; he was followed by ᶜAbd Allāh al-Ansārī (1006–88) and, finally, Abu 'l-Majid Sanā'i (1074–1150), who was born in Ghazna and also lived in Balkh and Herat, and whose works embrace many Sufi themes. His lengthy *Hadīqat al-haqīqa* treats of asceticism from the point of view of Sufism, while in his *Sayr al-*ᶜ*ibād* [Journey of the Devotees], he speaks of abstinence, withdrawal from the courts of the rulers, wine, love, beauty, philosophy and the hopes and aspirations of the people. This work influenced not only Nizāmī, Awhadi, ᶜAttār, Saᶜdī, Jalāl al-Dīn Rūmi, ᶜIraqi, Hāfiz, Jāmī and others, but also non-Sufi poets like Khāqānī, Salmān Sāwaji and others.[16] Poems of the type of the *Mahzan al-asrār* and *Laylā u Majnūn,* many *ghazals*, the majority of *rubā*ᶜ*iyyāt* and some *qasīdas* portray the perfect human being (*al-insān al-kāmil*), call for unity and discuss essence and quality, non-being and being, the unity of essence and asceticism.

Persian prose also developed significantly at this time. The language of the artistic prose of the eleventh century is free of artificiality and is simple, alive and expressive, as in the *Qābūs-nāma* [Book for Qābūs]. Poetic insertions are common, demonstrating an inalienable connection with poetry; and several prose works of this time were written on the principle of the narrative within a narrative, i.e. within a frame, such as the *Kalīla wa-Dimna* of Abu 'l-Maᶜālī Nasrallāh, the *Sindbād-nāma* of Abu 'l-Fawāris and the *Abū Muslim-nāma*, among others. It was also at this time that the literary and, in particular, poetic criticism in Persian was born, represented by such works as Muhammad b. ᶜUmar al-Radūyānī's *Tarjumān al-balāgha* [The Interpreter of Eloquence], Rashīd al-Dīn Watwāt's *Hadā'iq al-sihr* [The Magical Gardens] and Shams-i Qaysī Rāzī's *Mu*ᶜ*jam fī ma*ᶜ*āyīr ash*ᶜ*ar al-*ᶜ*ajam* [Dictionary of Persian Poetic Measures].

The ancient tale of the *Sindbād-nāma* had an Indian basis, and there had already been translations of it into Persian and Arabic; in 1161 Zahīr Samarqandī

15. Bürgel, in Yarshater (ed.), 1988, pp. 161–6; *EI*², 'Mathnawī. 2. In Persian' (J. T. P. de Bruijn).
16. Browne, 1906–20, Vol. 2, pp. 317–22; Rypka et al., 1968, pp. 236–7; Levy, 1969, pp. 97–8; Moayyad, in Yarshater (ed.), 1988, pp. 132 et seq.

made a new Persian translation. The *Sindbād-nāma* tells about a woman swindler, and the basic idea of the work is the dream of a very good, just ruler. There further appeared such popular literature as the tale of *Samak-i ᶜAyyār* [Samak the Adventurer], portraying many highly developed heroic characters, hence resembling the novels of more recent centuries. The author Farāmarz (who lived at an unknown period) collected a large number of folk tales and rewrote them around the adventures of a bold and resourceful hero Samak, so that the overall work gives the impression of a single whole. The action takes place in Iran, Armenia and the Arab world, and many characters in the tale have Persian names.[17]

Another prose work from this time that is worthy of attention is the *Sarguzasht-i Mahsatī* [The Adventures of Mahsatī], written by Jawharī Zargarī Bukhārī (second half of the twelfth century), of which manuscripts are preserved in St Petersburg and Baku. It relates the misadventures of a woman poet and singer, Mahsatī Khujandī, and her love for the son of a *khatīb* (preacher), Ganja Amīr Ahmad; hence it belongs to the genre of adventurous tales.

The thirteenth-century Mongol invasions destroyed or temporarily submerged many of the ancient literary centres of Transoxania and Khurasan, and many great writers fled or were killed. Hence in southern Iran, Anatolia, India and other places, new literary centres began to function; Saᶜdī, Jalāl al-Dīn Rūmī, Amīr Khusraw Dihlawī and their followers were produced by these circles. Northern India was important as an outlying area of Iranian cultural influence, with centres in such places as Lahore, where later Ghaznavid poets like Abu 'l-Faraj Rūnī (1039–1108) and Masᶜūd-i Saᶜd-i Salmān (1046–1121) were active. Muhammad ᶜAwfī fled from the Mongol invaders to India and in 1221–2 compiled an anthology entitled *Lubab al-albāb* [The Heart of Hearts], thus preserving examples from 300 years of Persian poetry. His other work, *Jawāmiᶜ al-hikāyāt* [Collections of Stories] (1233), included over 2,000 stories, tales, legends and anecdotes.[18]

The incomparable master of words of the late thirteenth century, however, was the Indian-born Amīr Khusraw Dihlawī (1253–1325). His ancestors were from Qarshi in Transoxania, but he himself was born in Patiala. He became famous for his *Khamsa* [Quintet], written in 1298–1301 in response to that of Nizāmi. His five *mathnawī*s on Indian subjects and events of his own time, and his treatises on the theory of literature and music, constitute a worthy contribution to the general development of Persian literature, while his romantic poem *Duwal Rānī Khidr Khān* exalts and advocates friendship between Muslims and Hindus.[19]

17. Rypka et al., 1968, p. 222.
18. Browne, 1906–20, Vol. 2, pp. 477–9; Rypka et al., 1968, p. 222.
19. Browne, 1906–20, Vol. 3, pp. 108–10; Rypka et al., 1968, pp. 257–9; Bürgel, in Yarshater (ed.), 1988, pp. 170–1, 174–5.

The fifteenth century in the eastern Iranian world is unequalled in the richness of its literature, with its colourfulness and diversity, the number of its poets and writers, and the liveliness of its literary circles. Thus ᶜAbd al-Rahmān Jāmī (1414–92) summed up the achievements of 600 years of Persian literature. He joined the Naqshbandī dervishes, visited Samarkand and Tashkent many times and went once on the Pilgrimage to Mecca. Jāmī's masterpieces are his *Haft awrang* [Septet], three *dīwāns*, the *Bahāristān* [Spring], scientific treatises and a voluminous biography of Sufi mystics, the *Nafahāt al-uns* [Breaths of (Spiritual) Companionship].[20]

ᶜAlīshīr Nawā'ī (1441–1501) was a disciple and friend of Jāmī's. A classic writer of Chaghatay Turkic literature, he also contributed greatly to the flowering of Persian literature, with a *dīwān* in that language.[21] But the dominant style of the period was the imitative style known as *nazīra* (response) and *tatabbuᶜ* (poem following on a previous model). *Ghazal*s were written most often in imitation of Saᶜdī, Amīr Khusraw and Hāfiz. Fattāhī of Nishapur (d. 1449) and the poetess Mihr-i Harawī (d. 1449) wrote *nazīra*s to the whole *dīwān* of Hāfiz, while in spiritual and didactic poetry, great attention was focused on Nizāmī's work.

Amongst didactic religious literature, Nasīmī (executed in 1412) spread the ideas of the Hurūfī sect, while authors like Jawharī Samarqandī wrote a *Siyar al-nabī* [Life of the Prophet], and the *Hawār-nāma* of Ibn Hishām (d. 1470) dealt with the supposed struggles of ᶜAlī b. Abī Tālib in Khurasan. Mainstream poets like Kātibī Turshīzī (d. 1435), ᶜĀrifī, Harawī (1388–1449), Fattāhī Nīshāpūrī (d. 1449) and Ahlī Shīrāzī (1454–1535) used complex artistic means of expression in their poems: figures and tropes, play on words, similes, double rhymes, double rhythms and other artificial, formal devices, thus sacrificing content to form and creating what are known as artificial *qasīda*s. Finally, one may mention the long poem *Bihrūz u Bahrām* by Kamāl al-Dīn Binā'ī, written between 1484 and 1497, as an outstanding example of ethical poetry; it consists of 77,000 *bayt*s dealing with the most important issues of ethics, government, education and social science, and emphasizing intelligence, education and social milieu as the main components in a person's intellectual and cultural formation.

20. Browne, 1906–20, Vol. 3, pp. 435–6, 445–8, 507–48; Rypka et al., 1968, pp. 286–8; Levy, 1969, pp. 158–60; Bürgel, in Yarshater (ed.), 1988, pp. 175–6.
21. Barthold, 1962, p. 196.

Part Two

Literature of the Turkic peoples

(A. Kayumov)

The earliest surviving written records of the literature of the Turkic peoples are from the sixth to the eighth century. Examples are provided by the inscriptions on the tombs of the Turkic rulers Köl Tegin (d. 732) and his brother Bilge Kaghan (d. 734), the military commander Tonyuquq and others. Written in the Old Turkic alphabet, often misleadingly called Turkic runes, they are known as the Orkhon-Yenisei inscriptions.

Examples of the oral folk tradition of the Turkic peoples and some fragments of literary works in Turkic are to be found in the Middle Turkic–Arabic dictionary *Dīwān lughāt al-Turk* [Compendium of the Turkic Dialects] compiled in 1071–4 by Mahmūd b. Husayn b. Muhammad al-Kāshgharī, who lived in the town of Balasaghun, in the heart of the Karakhanid state. He laboured for many years collecting material for his work, visiting all the regions in which Turkic peoples lived, from China to Transoxania, Khwarazm, Bukhara and Ferghana. Before compiling his dictionary, al-Kāshgharī wrote a book (now lost) on the grammar of the Turkic languages, the *Jawāhir al-nahw fī lughāt al-Turk* [Gems of Grammar Concerning the Turkic Dialects]. The dictionary, however, contains many fragments of poetry and proverbs illustrating the use of individual words and phrases. Considerable space is devoted to a *marthiya* (elegy) for Alp Er Tonga (10 quatrains);[22] an imagined dispute between summer and winter (23 quatrains); and a description of summer scenes (11 quatrains). Many verses concern battle scenes, hunting and other aspects of life. A whole verse cycle is devoted to the theme of love, including descriptions of the beloved and the youthful lover's lament over the bitterness of separation and the scant attention that he has received from his beloved. A good many of the verses have a didactic content; they propound moral standards and good behaviour. One may take two or three examples:

> Has Alp Er Tonga died?
> Has the evil world remained in place?
> Has time taken its revenge upon him?
> Now the heart is torn apart.

A poetic description of early summer:

> The storm has brought heavy clouds.
> Raindrops fall splattering,
> Pushing aside the light blue clouds.
> It is uncertain where they will go.

22. Alp Er Tonga ('Brave, Rich Tonga') was the name given to an ancient Turkish ruler known historically as Afrāsiyāb.

The poet gives a tender and touching description of love at first sight:

> The beautiful girl captivated me
> With her languid eyes, black beauty spot and rosy cheeks.
> She captivated me, and then ran away.

The *Dīwān lughāt al-Turk* contains a number of proverbs and sayings, which encapsulate centuries of experience from everyday life, such as 'Knowledge is a sign of well-being'; 'Two mountains cannot come together, but two people can'; 'Politeness begins with speech'; 'Don't look at the face, look at the worthiness'; and 'Whoever respects his elders will be happy.'

The poem *Kutadghu bilig* [Knowledge that Brings Happiness] by Yūsuf Khāss Hājib Balāsāghūnī was composed at around the same time as the *Dīwān lughāt al-Turk*. The author completed his work in 1069 and presented it to the Karakhanid ruler Tamghach Khan Ibrāhīm. The poet was awarded the high title of *khāss hājib* (chamberlain of the royal court) for his magnificent work.

The theme of the poem is simple: the just and renowned ruler Kün Toghdï has in his service a wise man called Ay Toldï. After Ay Toldï dies, his place in the ruler's service is taken by his son Ögdülmïsh, whose intelligence and zeal for work have earned him the ruler's favour. The poem consists almost entirely of the wise advice of Ögdülmïsh to the ruler Kün Toghdï. These wise thoughts cover all aspects of life and existence: the government of the country, relations between people, and ensuring the triumph of good over evil, peace and the well-being of the country. The main heroes of the poem are in fact symbols. As the poet says in the introductory section of the poem, the ruler Kün Toghdï symbolizes justice; Ay Toldï, as vizier, symbolizes the state; Ögdülmïsh stands for wisdom. The vizier's kinsman Odghurmïsh, who is invited to Kün Toghdï's court, is a symbol of sobriety, courage and contentment. The entire poem consists of the discussions between these heroes, and the questions and answers they exchange.

The government of the country should be founded on truth and justice, says the ruler Kün Toghdï, addressing his vizier, Ay Toldï:

> I serve only the truth, and all kinds of people
> Come to me for my verdict.
> There is justice in the world and it
> Is the same for lords and for slaves . . .
>
> Whether you be a stranger or my own son
> The sentence is the same and there is only one law.
> The ruler who has a bad reputation
> Has no right to judge and to govern.
> Only a rule which is just
> Will ensure that the lords may continue to live.

The poem consists of 74 chapters in Middle Turkic written in the *mutaqārib* metre (in the *ᶜarūd* metrical system); it is the earliest extant major work of epic poetry in a Turkic language. Of the three known manuscript copies, two are in Arabic script and one in the Old Uighur script.

The most popular poetic works of the twelfth century, still widely known among the people, are the quatrains of the Sufi poet Ahmad Yasawī known as the *Dīwān-i hikmat* [Compendium of Wisdom] (wisdom, here, meaning religious poetry). Being handed down from generation to generation, these quatrains have undergone a certain amount of formal adaptation and appear to have been recited according to contemporary linguistic norms, since their current form scarcely differs from modern literary Uzbek. In his verses, the poet protests against oppression and violence, social injustice and repression and calls for humility and patience, advocating reliance on the will of the Almighty.

A number of philosophical and didactic works in Middle Turkic appeared in the twelfth century. They include the *Hibat al-haqā'iq* [The Gift of Truths] by Ahmad Yükneki and *Qissa-yi Rabghūzī* [Rabghūzī's Tale], an account of the life and times of the prophets by the poet Rabghūzī. At the same time, there were a number of poetic works singing the praises of earthly human love, such as the *Mahabbat-nāma* [Book of Friendship] by Khwārazmī, the *Taᶜashshuq-nāma* [Book of Love] by Saᶜīd Ahmad, the *Latāfat-nāma* [Book of Charm and Subtle Wit] by Khujandī and the *Dah-nāma* [Book of Ten Chapters]. Well-known works of classical Persian poetry were also translated at this time into Turkic, including *Khusraw u Shīrīn* by Qutb and the *Mahzan al-asrār* [The Treasury of Secrets] by Haydar Khwārazmī.

In the late fourteenth century and the first half of the fifteenth, there was a marked increase in the volume of written literature in Eastern Turkic. It was at this time that Dur Beg wrote his poem *Yūsuf u Zulaykhā*, while Uzbek lyric poetry was enriched by the works of such outstanding poets as Lūtī, ᶜAtā'ī, Sakkākī, Gadā'ī and others.

The noticeable increase in the volume of written Turkic literature in the periods mentioned was followed in the latter half of the fifteenth century by the appearance of ᶜAlīshīr Nawā'ī (1441–1501), a towering figure in Uzbek and world literature. His name is associated with a great flowering of poetry, prose, historiography, the fine arts, book-making, calligraphy, music and architecture, and generally a higher level of support for literature and the arts. Nawā'ī was highly placed in the administrative of Khurasan, whose capital was Herat, and he had a great influence over the ruler, Sultān Husayn Bayqara (1469–1506). It was Nawā'ī's patronage of literature and art that ensured their rapid growth. Nevertheless, it was his own contribution that was the decisive factor here.

Chief among Nawā'ī's Chaghatay Turkic works are the *Khamsa*, a cycle of five poems, composed during the period 1483–5. They comprise *Hayrat al-abrār* [The Bewilderment of the Righteous], *Farhād u Shīrīn*, *Laylā u Majnūn*, the *Sabᶜa-yi sayyār* [Seven Pilgrims] and *Sadd-i Iskandar* [Iskandar's Barrier].

The main focus of the cycle is its exaltation of man; its heroes, who include Farhād, Shīrīn, Laylī of Qays, Dilārām, Bahrām, Saᶜdī and Mihrnāz, are well-rounded characters, exemplifying the best features and the highest virtues of individuals destined for great things. One might cite the following lines:

> A man who does not feel human grief
> Is unworthy to be called a man

or:

> Know, O people of the world, enmity is a bad thing.
> Live in peace and friendship one with the other,
> There is no better destiny!

Iskandar (Alexander the Great), the hero of the poem *Iskandar's Barrier*, built a mighty rampart protecting a prosperous valley against attack by Yājūj and Mājūj (Gog and Magog), so that he emerges as a saviour of the people from impending disaster. But at the same time, Nawā'ī condemns Iskandar's desire to become the ruler of the entire world: the dry land, the oceans and even the ocean floor. He shows the futility of Iskandar's campaigns of conquest in his description of the death of the ruler of the world: Iskandar ordered that his hand should be left hanging out of his coffin so that people could see that the hand that had held sway over the whole world was departing from this life empty, like the shrivelled branch of a tree, and thereby draw their own conclusions.

Nawā'ī was the author of four collections of lyric poems in Chaghatay Turkic and one book of verse in Persian. The main theme of his lyrical writings is earthly human love, the basis of human happiness, which ennobles man and enriches his spiritual world. Where love prevails, there is no room for evil. Nawā'ī's fine poems, couched in various forms such as the *ghazal*, *mukhammas*, *musaddas*, *mustazād*, *rubāᶜī*, *qitᶜa*, *sāqī-nāma* and others, thus constitute a high point of poetic achievement; he also wrote many prose works.

In his works, Nawā'ī demonstrated the great potential, beauty, wealth and euphony of his native language, showing that it was possible to produce fine works of literature in it. He is therefore rightly regarded as the founder of Chaghatay literature and the Chaghatay literary language, later to evolve into Uzbek.

Part Three
TIBETAN AND MONGOLIAN LITERATURE
(G. Kara)

Tibetan literature

Tibetan literature emerged in the Tibetan empire during the seventh to the ninth century. It evolved from oral tradition and, by recording and reinterpreting historical lore, served the imperial rule, perpetuating its glory and affirming its legitimacy. By recording its archaic funeral rites, myths and other holy texts that formed an important part of the literary tradition, the early literature also served the pre-Buddhist, animistic religion of Bon. As a powerful rival to the old faith and imported into Tibet from northern India, Nepal and China, Mahāyāna Buddhism also appeared here. Transformed by the powerful influence of northern Buddhism, the Bon religion all but disappeared, leaving Buddhism as the dominant ideology in Tibet for the last fifteen or so centuries.

The new religion transmitted many elements of non-Buddhist Indian culture, ethical thought, poetic and grammatical theory, together with stories from the great epic cycles such as the *Rāmāyana*, poems like Kālidāsa's *Meghadūta* and collections of tales like the *Pañchatantra*. Most of the Buddhist scriptures were translated into Tibetan from Buddhist Hybrid Sanskrit (many of them in the centuries of the empire), some works were adapted from Chinese translations, while others go back to Khotanese Saka and Bru-zha versions. A particularly important role was played by Khri-srong lde-brtsan (755–97), during whose reign the old translations were reworked and a new style developed. After the imperial period the diligent work of translations continued in western Tibet, in Ladakh and in Zangskar, for example by Rinchen bzang-po (958–1055).

The translations led to numerous commentaries, and commentaries on commentaries, creating a vast 'secondary' literature. Nevertheless, Tibet is far from being a mere 'literary province' of India and Indian Buddhism. Old and new, secular and sacred traditions of both Buddhist and non-Buddhist, indigenous and foreign ideas inspired a vast literature, out of proportion to the size of the Tibetan population. Its oldest known monuments are the eighth-century stone inscriptions of the imperial period, such as those of the Zhol pillar *rdo ring* (long stone) located beneath the Potala in Lhasa. One of them mentions the Tibetan victory over the Chinese army, and an inscription in the Gtsug-lag-khang (Lhasa) of the early ninth century reports on the treaty of 821–2 between the 'marvellous ruler Khri-gtsug lde-brtsan' and the ruler of T'ang China; antithetic parallelism and an elevated style make this prose text poetic.

In the same grotto of the Dunhuang Thousand Buddhas' sanctuary in which the long scroll of the *Extracts of the Annals* had been hidden were found the Old Tibetan historical narratives: the *Imperial Chronicle* and the *Genealogies* with the *List of the Principalities* and the *Origin of the Rulers*, including among other topics an account of the mythic origin of the dynasty of divine rulers.

The most important monument of Old Tibetan literature, the *Imperial Chronicle*, probably compiled during the reign of Tibet's last anti-Buddhist emperor Glang-dar-ma (838–42), is not strictly a chronicle, but a literary history of the origin and deeds of the early Tibetan rulers, their country and councillors, and the important families. It abounds in mythic and poetic elements, legends and songs. The narrative of the life and death of Dri-gum, the last divine sovereign, relates that he was given the wrong name and became the victim of his own haughtiness. He gave his magic weapons to Lo-ngam, his equerry, whom he forced to fight with him. Defeated and killed by his subject, the ruler was unable to ascend to heaven. The majestic heroes of this narrative often sing songs of strophic structure; six-syllable verses form three- or four-line units with parallel sentences. The Tibetan princess sings about her sorrow at the foreign court; members of the important clan of Dbas offer their loyalty in verse to their lord, the emperor Khri-srong-brtsan: in their song they promise not to poison the ruler.

Among the non-Buddhist Tibetan manuscripts of Dunhuang are collections of Bon myths, tales and maxims. An old allegorical story tells how the wild horse was tamed; another manuscript of Buddhist and Confucian works contains the *Parables of Mother Sum-pa to be Taught to Future Generations.* 'To nourish a child without teaching him is the beginning of darkness,' says one of the 111 wise sayings.

Instead of the Bon cult of his ancestors, Emperor Khri-lde srong-brtsan (*c.* 800–14) chose the faith of the Three Jewels: Buddha, his Teaching and his Community. According to the inscription on the stone pillar of Skar-chhung, he ordered his descendants to be faithful to Buddha's religion and never to abandon it, even if ominous tokens or dreams suggested this. However Glang-dar-ma, a descendant of his, rejected the new faith, and the persecution of Buddhists ceased only with his assassination in 842. But his death also meant the end of the Yar-lung dynasty and of the unity of the Tibetan nation. The borderlands, the eastern Tsong-kha and especially the western Mnga-ris, gave refuge to Tibetan Buddhist culture.

From those parts of Tibet started the renaissance of Buddhism and its 'second spreading' (*phyi-dar*) over Tibet. Many Tibetan men of letters went to India and Kashmir to study the various schools of Buddhist Mahāyāna philosophy and practise yoga, tantra and magic. They studied at the Indian universities of Nalanda and Vikramashila. Rin-chhen bzang-po (958–1055), an eminent scholar, translator and writer from westernmost Tibet, founded several monasteries which became centres of religious and literary activity. The

Order of the Followers of the Advice started with his Indian contemporary, Atisha (1002–54, in Tibet since 1042), and with Atisha's disciple, Brom-ston (Teacher Brom), founder of the monastery of Rva-sgreng in the heart of Tibet (1057). The Order of Sa-skya ('Whitish Earth', a place in south-western Tibet) was established in 1073 and became very significant in the political and cultural life of the country, particularly in the thirteenth and fourteenth centuries. The order and the principality led by it gave several great writers to Tibet.

Mar-pa of Lho-brag ('Southern Rock', 1012–96), famous translator, master of mystic hymns (Skr. *doha*) and preacher of the Teaching of the 'Great Seal' of mental transfiguration, also learned in India, in Bengal. He was the inspirer of the Order of the Tradition *(Bka'-rgyud-pa)* and teacher of Mi-la ras-pa (1040–1123), Tibet's most famous mystic poet and hermit.

Many monastic orders, schools and rites came from the religious communities, whose number was steadily growing. In the eleventh and twelfth centuries there took root the movement to 'rediscover the hidden treasures (*gter-ma*) of teaching', with the development of a large apocryphal literature. Many of these 'rediscovered' works were ascribed to Padmasambhava, the legendary Indian Buddhist missionary of Tibet, magic conqueror of its hostile demons. A collection of such 'rediscovered treasures' is the twelfth-century *Rgyud-`bum* [Hundred Thousand Traditions] of the Old Orders. In the thirteenth century, Guru Chhos-dbang is said to have found the older biography of Padmasambhava, while a later *Life* of the magic teacher was 'rediscovered' by O-rgyan gling-pa Kun-mkhyen tshul-khrims in 1352.

Another well-known work 'found' by him was the fourteenth-century *Bka'-thang sde lnga* [Fivefold Memorial], which preserved some genuine old pre-Buddhist historical and literary traditions, along with apocryphal prophecies (*lung-bstan*) of a later age. A source which O-rgyan gling-pa used in compiling the *Fivefold Revelations* was the *Gzer-myig*, a rediscovered old treasure-book of tales. The so-called *Book of the Dead*, a collection of instructions, hymns and prayers in prose and verse, advice for the mind erring between death and rebirth, represents a special genre of the 'rediscovered treasures'. The most famous of these writings bears the title *Bar-do thos-sgrol* [Redemption from the Intermediate State by Hearing]. Originally said to be found by O-rgyan gling-pa, it was reworked in the sixteenth century by its first editor, Shes-rab `od-zer.

The *Great Guide [dkar-chhag] to Bsam-yas* (also known as the *Sba-bzhed*, twelfth or thirteenth century) describes the legendary history of the great monastery founded in the eighth century. This chronicle also lists the miraculous deeds of Padmasambhava and his hidden works to be rediscovered by later 'treasure-finders'. A similar, apocryphal history, the *Bka'-chhems Ka-bkol-ma* [Testament Hidden in the Pillar], dating from the thirteenth or fourteenth century, is ascribed to Emperor Srong-brtsan sgam-po; tradition claims that its alleged discoverer was Atisha.

Tradition also has it that it was Atisha who transplanted the Indian tales of the *Bewitched Corpse* (*Vetalapañcavimśatikā*, Tibetan *Ro-sgrung*) to Tibet. The late versions of the Tibetan collection embrace mostly Tibetan tales. From the Indian material, only the frame story with the Corpse remained tinged with Buddhist influence. One of the tales, the story of the half-man, half-bull Yak Horn Ma-sang and his struggle with an ogress, is also found in other works, such as the narrative collection of the *Father's Teaching* and the *Son's Teaching* (*Pha-chhos*, *Bu-chhos*), from Brom-ston's eleventh-century tradition. A famous collection of Buddhist parables, the *Dpe-chhos*, was composed by Po-to-pa Rin-chhen-gsal (1031–1105); later authors added ample commentaries to it.

Scenes of Mi-la ras-pa's eventful life – his sinful and painful youth, dominated by a bitter family feud and his mother's quest for revenge, his studying black magic, then his Buddhist conversion and his sufferings in the service of his teacher Mar-pa, followed by his life as a hermit in the mountain wilderness – are often shown on painted scrolls. These scrolls are an illustration to his *Life* (Tibetan *rnam-thar*, a rich genre), transmitted in written and oral forms. A large work relating his life with his verses, the *Mi-la'i Mgur-`bum* [Hundred Thousand Songs of Mi-la], was compiled by Sangs-rgyas rgyal-mtshan (1452–1507), also known as 'Heruka, the Madman of Tsang' or 'He Who Wears Bone Ornaments'. (Another *Mgur-`bum* contains the verses of Sgam-po-pa, one of Mi-la's disciples, 1079–1153.) Metaphorical images that were also popular in later poetry help to depict the nature of the Land of Snow in these songs: the white lioness with turquoise mane on the glacier, the eagle – the king of birds – on the cliff, the striped tiger in the forest, the golden-eyed fish in the lake. Seclusion from worldly vanities and unity with the utmost truth of the Law, the long path from the depth of suffering in the world of illusions to the bliss of enlightenment in meditation, are the messages of his *Life and Songs*.

The *Fivefold Memorial* (on the Sovereigns, the Imperial Consorts, the Ministers, the Translators and Pandits, the Gods and Demons) contains an early mention of Ke-sar of Khrom (or Phrom = Rūm, the Islamic name for Byzantium), Tibet's great epic hero. It follows the old tradition about the divine origin of the Tibetan rulers, describes the teachings of the pre-Buddhist Bon religion in long verses with the legend of Gshen-rab myi-bo, the first teacher of the Bon; it tells the story of how the magic Guru Padmasambhava subdued the demons of the country, and relates how he converted an imperial consort who was ready to seduce a monk.

The didactic fables of the Indian *Pañchatantra* illustrated the *Legs-par bshad-pa'i rin-po-chhe'i gter*, or *Sa-skya Legs-bshad* [Treasury of Good Sayings], a versified ethical guide for the noble, written by Sa-skya Paita Kun-dga' rgyal-mtshan (1182–1251?), the fourth of the great religious and political leaders of the Sa-skya order and principality. This great scholar and politician, who was wise enough to find a more or less peaceful way of dealing with the Mongol warriors and who attained privileges for his order, left some 60 ethical,

epistemological and philosophical works incorporated in the *Sa-skya bka'-`bum* [Hundred Thousand Words of Sa-skya]. In his *Treasury*, he admonishes people to distinguish between proper and improper, wise and foolish, good and bad behaviour, and he praises quality and moderation and eulogizes Buddha's Law.

Numerous admonitions (*gdams*) and versified benedictions were written for the members of the Mongol imperial family by Phags-pa Blo-gros rgyal-mtshan (1235–80), the next great Sa-skya high priest, the emperor Qubilay's Tibetan monk. His enormous *oeuvre* also contains an encyclopedic work (*Shes-bya rab-gsal*), a brief chronicle of the Tibetan sovereigns (*Bod-kyi rgyal-rabs*, 1273) and the important letter sent to the Tibetan monastic orders from the Mongol court in 1274. He requested and promoted the Tibetan translation of such Indian works as Dain's *Kāvyadarśa* [Mirror of Poetry], Kālidāsa's *Meghadūta* [Cloud Messenger], the *Buddhacarita* [Buddha's Life] by Aśvaghośa, and Harśadeva's drama, *Nāgānanda*, all incorporated in the Tibetan Buddhist canon.

In the middle of the fourteenth century, when apocryphal literature was still flourishing, Bu-ston Rin-chhen-grub (1290–1364), another great scholar and writer, head of the monastery of Zha-lu, canonized the Tibetan Buddhist scriptures: the Kanjur (*Bka'-`gyur*), the Word Translated, and the Tanjur (*Bstan-`gyur*), the Teaching Translated. The two collections, contained in over 330 volumes, include more than 4,000 works. The Kanjur (usually in 108 volumes) is divided into several sections. These comprise the Teaching Transmitted (Tantra, *Rgyud*), Metaphysics (Prajñāpāramitā, *Sher-phyin*), the Sutras (*Mdo*, partly narrative works), the Ratnakūta (*Dkon-brtsegs*, the Mound of Jewels, with legends), the Avatamsaka (*Phal-chhen*, the Great Universe of the Buddhas) and the Vinaya (*`Dul-ba*, mostly the Discipline). In the Tanjur, the section on the Explanation of the Sutras (*Mdo-`grel*) contains the metaphysical works (*Sher-phyin* and *Dbu-ma*, Nāgārjuna's teaching of the Middle Way, the Voidness, that dissolves the contradiction of the Buddhist 'nominalists' and 'realists', of the object negating its subject, and of the subject negating its object), the *Sems-tsam* with yoga, the Abhidharma and the *Jātaka*s (*skyes-rabs*, stories from the Buddha's earlier lives). Other subjects are: discipline (*`Dul-ba*), the letters of advice (*Sprin-yig*), epistemology (*Chad-ma*), grammar (*Sgra-rig-pa*), medicine (*Gso-rig-pa*), arts (*Bzo-rig-pa*), ethical guides and various treatises. Under the influence of the Buddhists, the followers of Bon compiled their own scriptures that grew larger than the Buddhist canon.

Bu-ston, founder of the Zha-lu-pa school, was also the author of a history of Buddhism (*Chhos-`byung*, 1320) and numerous large treatises on philosophy and tantra. His *Life* was written by his disciple Sgra-tshad-pa Rin-chhen rnam-rgyal in the fourteenth century.

The most influential personality in the cultural history of Tibet was Blo-gros grags-pa (1357–1419), or Tsong-kha-pa, a native of the Onion valley, in the Koko Nor region; his birthplace, Kumbum, is one of the holiest spots in the

Tibetan world. A reformer of monastic life and founder of the Yellow Hat Order (*Dge-lugs-pa*, Followers of the Virtue, with the monastic discipline restored), Blo-gros grags-pa was a prolific writer whose literary activity embraces nearly the entire universe of Buddhist knowledge. He wrote prose and verse, long treatises and short letters; his most famous work is the *Lam-rim chhen-mo* [Great Gradation of the Path to Enlightenment], in 10 chapters, which he also expounded in shorter versions. In his *Rigs-pa'i rgya-mtsho* [Large Sea of Righteousness], in 27 chapters, he gives his own interpretation of the teaching of the Middle Way; his *Yid-chhes gsum-ldan* [Threefold Devotion] offers a guide to the 'deep path' of Nāropa's Six Yoga Principles; his *Legs-bshad gser-gyi phreng-ba* [Well-Told Golden Garland] is a sizeable treatise on metaphysics. His 210 writings are gathered in 20 volumes added to the Peking Tibetan Tanjur.

The *Hundred Thousand Words of Pearls*, or *Mani bka'-`bum* [Collection of Spells], a widely known apocryphal work (*gter-ma*) 'rediscovered' in the twelfth century and reworked in the fifteenth or the sixteenth century, represents a compilation of historical and religious legends, teachings and descriptions of magical practices. It is based on both written and oral sources. One of the best parts is the captivating story of the marriages of the first Tibetan emperor.

Several versified sentences and wise sayings are found in the *Poti bse-ru*, the history (*gdung-brgyud*) of the Rlangs family (*c.* 1400). From among the historical works of the late Middle Ages, the *Red Annals* (*Deb-ther dmar-po*, or, in Middle Mongolian, *Hu-lan deb-ther*) by Tshal-pa Kun-dga' rdo-rje (fourteenth century) is known in an earlier and a later redaction. The *Rgyal-rabs gsal-ba'i me-long* [Bright Mirror of the Sovereigns] chronicle, with legends and historical narratives ascribed to Sa-skya Bsod-nams rgyal-mtshan (1312–75), and first printed in 1478, describes the origin of the world, Buddha's life and the fate of his teaching in China and Mongolia up to Togon Temür, the last Mongol ruler in China. *Inter alia* it tells how Avalokiteśvara, the Bodhisattva of compassion, led the Tibetan people of the Land of Snow to Buddha's redemption, how this people originated from the union of a monkey (the compassionate Bodhisattva) and a mountain demoness (identified later with Tārā, the goddess of redemption), and how Tibetans were ruled by their early sovereigns. The story of the monkey and the demoness is repeated in the history compiled by `Brug-pa Pad-ma dkar-po (White Lotus of the `Brug-pa Order, 1526–92), a devotee of the yoga of the 'swift way'.

The *Deb-ther sngon-po* [Blue Annals], 1478, the largest chronicle of the period, was written by Gzhon-nu dpal (Translator of Gos, 1392–1481). This is mainly the history of the monastic orders and schools, with the 'lineages' of their teachers and disciples, the transmission of their particular teachings, their religious ideas and their systems. Elements of political history appear only in the frame of the movements of ideas.

Pad-ma dkar-po's contemporary and fellow-monk, `Brug-pa Kun-legs, was another great mystic poet. This mendicant friar and yogin sang his songs

to his own accompaniment. His poetry is full of symbols: the turquoise dragon stands for the sky and the waters, the elephant for power, the conch-trumpet and the drum for fame and renown, whereas the dragon's drum is the rolling thunder. In his *Long Song*, composed in verses of varying length, he bitterly criticizes the avaricious, lewd monks and the haughty rich.

A new age begins in the late sixteenth century with the alliance between the most prominent Tibetan religious leaders of the Yellow Hat Order (the leading force of the theocratic system) and the Mongol rulers struggling for the restoration of their empire, and with the as yet far-away shadow of the emerging Manchu power over eastern Inner Asia.

Mongolian literature

Concerning the art of the word among the pre-thirteenth-century peoples of Mongolian tongue, we have information from Chinese sources and from some extensive epitaphs and minor inscriptions in Kitan scripts. Two quatrains of a Kitan shamanistic funeral rhyme are preserved in Chinese translation; they represent an early example of antithetic parallelism: winter and darkness versus summer and brightness. Kitan inscriptions, only partly deciphered and in most cases only vaguely parallel to their Chinese versions, contain hundreds of verses: the characters of the 'assembled' or 'small' script clearly indicate the main elements of prosody. This poetry seems to have numerous Chinese elements: metaphors, allusions and perhaps also end-rhyme. Kitan men of letters translated Chinese classical poetry into their own language. Works written by Kitan poets in Chinese (e.g. by Xuanyi, Emperor Daozong's consort, sentenced to commit suicide in 1085, or by Yelu Chucai, 1189–1243, Chinggis Khan's Kitan Buddhist counsellor) form a particular group within Chinese poetry.

The literature of the Mongols proper began with inscriptions, historical narratives and diplomatic letters. A short but famous monument is the laconic message about an archers' race held after Chinggis Khan's return in 1225 from his victorious campaign against West Turkistan. The later, and wordier, official Sino-Mongolian epitaphs, such as that of Chang Yingrui (1335), and other epigraphic monuments of the fourteenth century, such as the inscription eulogizing the Buddhist shrine of Karakorum (1346), tell us more about the world of the Chinese subjects of the Mongol empire than about the Mongols themselves. Nonetheless, these texts also show how the Mongols assimilated Chinese forms and content, such as Confucian ideas in alliterative verses, here and there with end-rhymes, an innovation that has not been able to take hold even in modern Mongolian poetry. Mongolian, or, better, 'Altaic' alliteration, a most important feature of Mongolian prosody, is the repetition or consonance of the beginnings of two or more parallel rhythmic units: lines or halves. Alliteration likewise appears in many versified passages of *The Secret History of the Mongols*.

The Secret History of the Mongols

This extensive historical narrative was compiled in the thirteenth century. Its exact date is much debated, but it seems certain that the first possible year for the earliest redaction, relating the genealogy and the deeds of Chinggis Khan, is 1228. It was composed by the anonymous author(s) from oral tradition concerning the remote past and from the memory of contemporaries concerning recent events. The work itself has had an eventful history, having been preserved and come down to us in several versions. The most complete was used in the late fourteenth century as a textbook for the Bureau of Interpreters of the Ming dynasty of China. The text, originally written down in the Uighur script, was transcribed in Chinese characters used as syllabic symbols. With diacritics, these formed a fairly accurate system of transcription. With a few exceptions, each Mongol word also received an interlinear Chinese gloss. The Chinese divided the text into 12 (in another version into 15) chapters, the whole broken up, for learning purposes, into 282 paragraphs and each of them accompanied by a Chinese summary.

This narrative, consisting of some 100,000 Mongol words and containing more than 650 proper names including ethnonyms, was copied into the *Yong-le Ta-tien*, a large encyclopedic anthology of the Ming. Most of it perished in a fire, but *The Secret History* survived, thanks to a copy made before the calamity. Another and perhaps older copy of the text written in the Uighur script was used by Blo-bzang bstan-`dzin, the seventeenth-century compiler of the *Altan tobchi* [Golden Summary], into which he copied about two-thirds of *The Secret History*. For the work's place in Mongol historiography, see Chapter 4 above, pp. 156–8.

The original narrative must have had much in common with the lost *Altan debter* [Golden Book] mentioned as one of the sources in the *Jāmi*ᶜ *al-tawārīkh* [Compendium of Histories] written in Persian by the historian Rashīd al-Dīn. (Another parallel source, the *Record of the Campaigns Led Personally by the Holy Brave Emperor*, is known in Chinese translation only.)

The Secret History (this title must have been given in the late fourteenth century) is a complex work in which prose and verse, myth and history, oral tradition and literature, brief stories, epic fragments, battle-songs, odes, elegiac songs, versified 'political and diplomatic' messages carried by the khans' messengers, monologues and dialogues, vivid descriptions of battles, proverbs, genealogies, regulations and laws, form the texture of a magnificent saga of nomadic lore. The main values exalted in this story of the Golden Clan's origin and its first two ruling generations are glory and fame, loyalty, bravery, excellence and skill in warfare, wealth and wisdom, wit, beauty and noble origin. The following is a summary of its contents:

1. Temüjin's ancestry, his genealogy from the mythical Grey Wolf and Fallow Deer up to Yesügey, his father (9 + 3 + 9 generations). Stories attached

to the branches of the genealogical tree: the One-Eyed Duwa and his brother Dobun; the latter's widow, Alan the Fair, is visited by a divine night visitor, Bodonchar the Half-Witted; one of her sons is begotten by the nocturnal visitor who left the tent by climbing up the beams of the light of dawn. Yesügey ravishes Hö'elün, the newly wed wife of Chiledü of the Merkit tribe. Temüjin is born and named after a subdued Tatar chief. His betrothal. His father is poisoned by vengeful Tatars.

2. Temüjin's youth. His mother is abandoned by her people. Temüjin is captured by the Tayichi'ut, his rival relatives; he escapes. Eight fallow geldings are returned by him from the robbers, with the help of a new friend, Bo'orchu. He allies himself with To'ril Ong kan, the Kerait (Kereyit) ruler, Temüjin's father's sworn brother. The Merkit take revenge for Chiledü's wife; Temüjin's Lady Börte is ravished.
3. Lady Börte is released with the support of Ong kan and Jamuka, Temüjin's distant relative. Great friendship, then a split between Jamuka and Temüjin. Temüjin's first enthronement as Chinggis Khan, and the first organization of his court.
4. Jamuka's confederacy against Chinggis. Chinggis is defeated, withdraws to the Onon river. Jamuka's terrible revenge for his murdered brother; horrified, many of his followers join Chinggis. His feast at the Onon river; his brother wounded in a quarrel with Büri, the Jürkin wrestler. Chinggis' campaign against the Tatars. The Jürkin revolt is suppressed and Büri's back is broken. Serfs and companions for Chinggis; abandoned sons of enemy nobles given to Chinggis' mother as his younger brothers. A confederacy raises Jamuka as sovereign (para. 141, with the first exact date: a Year of the Hen, 1201); his campaign against Chinggis and Ong kan fails. Chinggis is seriously wounded in his fight against the Tayichi'ut; he is rescued by Jelme, his true warrior. Jebe (Arrowhead), a brave enemy, is forgiven and favoured. The Tayichi'ut are defeated by Chinggis.
5. A Tayichi'ut prince is captured by his own subjects, then released for fear of the severe punishment that Chinggis Khan used to mete out for treason. Chinggis' campaign against the Merkit. A summary of Ong kan's misdeeds. Threatened by the Naiman, he flees to the Kara Kitan. Jamuka's double game on the enemy's side. Chinggis helps Ong kan and his son Senggüm, pursued by the enemy. Senggüm's plot against Chinggis Khan fails.
6. Battle between Chinggis and Ong kan at the Kalakaljit sands; great losses on both sides. Jamuka's double game, ostensibly on Ong kan's side but actually against Chinggis. Senggüm wounded. Chinggis Khan's son Ögedey badly wounded but rescued by Boro'ul. Chinggis' messages warning his former allies, now enemies: Ong kan, Jamuka, Senggüm and others. He defeats the Kereyit army; Ong kan and his son flee.
7. The booty taken from the Kerait is distributed (but the Kerait Jakagambu is saved because of his daughter Ibaqa); Ong kan accidentally killed by a

Naiman frontier guard; Senggüm's death in the desert; the loyalty of the wife of Senggüm's horseman is appreciated by Chinggis. The dead Ong kan's head is honoured at the Naiman court; the ominous laughter of the dead. Gürbesü, the Naiman empress, despises the 'malodorous Mongols'. Chinggis Khan's regulations: the decimal organization of the army, duties of the quiver-bearers and the guard, etc. Unfurling of the standard in summer 1204, then Chinggis' move against the Naiman empire; Emperor Tayang is frightened; Jamuka's eulogy of the Mongol warriors increases fear at the Naiman court. Chinggis vanquishes the Naiman and 'takes' the haughty empress. Another campaign against the still powerful Merkit; Lady Kulan of the Merkit offered to Chinggis.

8. Pursuit of Merkit and Naiman groups; the Merkit destroyed. Captured by his companions, Jamuka is brought to Chinggis. Jamuka and Chinggis have a long talk about their former friendship; Jamuka refuses Chinggis' offer of favour and asks for an honourable death: without his blood being shed and with a proper burial (1205). Chinggis Khan enthroned (again) as Universal Ruler (1206). Jebe pursues the Kara Kitan emperor. Chinggis appoints the commanders of the Ninety-five Thousands. Favours for merit. Writing of the *Blue Book* [Register].
9. Distribution of favours continues. Regulations for the army, the guards; their hierarchy.
10. Eulogy of the elder bodyguards on night service; 10,000 guards for Chinggis Khan's personal service. Duties of the guards on night service. Submission of the Karluk people. Submission of the Uighur kingdom. Sübetey destroys the fleeing Merkit princes and Jebe puts an end to the Kara Kitan empire. 1207: Chinggis' adopted son Jöchi leads a campaign against the People of the Forests and the Northern Tribes; wars with the Kori Tumad (southern Siberia). Chinggis Khan's favours for his kinsmen. Fall of the overly influential Kongkotan clan and its leader, Tebtenggeri, the sorcerer.
11. Chinggis Khan's first campaign against the Chin empire. His first campaign against the Kashin (the Tangut or Hsi Hsia empire). 1214: his second campaign against the Chin. His envoys killed by the Sarta'ul, the Muslims of West Turkistan. Before his western campaign: the question of the Khan's heir raised by Yisüi, his Tatar consort. Quarrel between Jöchi and Cha'adai. Apology for Börte, who brought Jöchi from her Merkit captivity. Ögedey accepted as heir. 1219: the seven-year Western Campaign begins; Chinggis accompanied by Lady Kulan. Ögedey's misdeed; youngest son Tolui's faithfulness. Sübetey's Western Campaign. Governors appointed over the territories conquered. 1225: back home, Chinggis on the Tu'ula (Tola) river.
12. The Tangut campaign, the Hsi Hsia empire attacked (1226–7); Chinggis Khan's death (1227). Ögedey enthroned (1228), his campaign against the

Chin empire. Tolui's self-sacrifice for Ögedey's life. The Chin defeated. Baghdad conquered. Jöchi's son Batu's complaint against Ögedey's son Güyük and other princes. Regulations for the guards renewed. Ögedey's merits and self-critique. Postscript.

The wise sayings of Chinggis Khan and his heritage were preserved in Rashīd al-Dīn's Persian history and late sixteenth- or seventeenth-century collections. He and other Muslim writers further recorded anecdotes concerning Ögedey's generosity; the emperor Möngke's learning from Mahmūd Yalavach about Iskandar (Alexander the Great) and about Aristotle; and Ögedey's and Chagaday's contest in reciting aphorisms.

The diplomatic letters sent by the Mongol rulers of Iran to Philip the Fair of France and to the Pope at the turn of the thirteenth and fourteenth centuries are written in a lively, almost colloquial style, full of pride and self-confidence. A good example of this correspondence is Arghun's message (1289) to the king of France, concerning a plan for a joint campaign against Damascus and Jerusalem, in which he also asks for some fine French falcons and 'stones of various colours'. In his letter to Pope Nicholas IV (1290), he proudly refuses any intervention in the affairs of religion (and, needless to say, in the affairs of state): 'We, Chinggis Khan's offspring, decide ... whether or not we accept baptism.' Sultan Öljeytü's letter (1305) to Philip the Fair is a message suggesting a renewal of the friendship between the two sides which, 'though far from each other, feel as if they were near' (an old formula also found in earlier Uighur letters from Dunhuang).

The Mongolian inscription of 1340, carved in Uighur script on a stone stele in Yunnan, southern China, commemorates the peace restored during the governorship of the Mongol prince Aruk. The text runs as if told by himself, in the form of an edict, but apart from the obligatory official formulas, it is an unusual confession of modesty and of his feelings towards the local people. It is finished with a rather practical though pious decision: the depositing of a significant sum in a monastery, with the interest given for the recital of the Buddhist scriptures. A long Buddhist verse in alliterative stanzas and in Emperor Qubilay's imperial square script forms part of the hexaglot inscription adorning the Juyongguan Gate of the Great Wall (1345).

However, translations of Buddhist canonical and extra-canonical works from Tibetan and Uighur form the bulk of classical Mongol literature. They include, for example, the Mongol version of the Sutra of Golden Light, *Suvaraprabhāsottama*, with the Dream of the Golden Drum and with spells and *jātaka*s, among them the famous story of the compassionate prince and the hungry tigress; the *Pañcarakā* [Five Protectors], five books full of spells and magic practices; one of Shakyamuni Buddha's Lives (*Lalitavistara*, with Mongol verses, translated by Shirab Sengge, early fourteenth century); Sa-skya Paita's *Legs-bshad* or *Subh~itaratnanidhi* [Treasury of Good Sayings], first translated into prose by Sonom Gara; and Shantideva's long poem, the

Bodhicaryāvatāra [The Journey to Enlightenment]. Such works brought many new ideas and sophisticated notions, new forms and topics to the Mongols' literary expression. The 1312 xylograph edition of the Mongol *Bodhicaryāvatāra* with commentary, a work of Chosgi Odsir (Tibetan, Chhos-kyi `od-zer), contains his postscript with his name and benediction, written in good alliterative quatrains. Through his merit of translation and commentary, he proudly asks to be reborn as the best of the monks. Chosgi Odsir is also the author of a strophic hymn honouring the fierce goddess Mahākali; parts of his alliterative verses survived in the fragment of a fourteenth-century block-printed concertina-book.

Voices of a different world can be perceived in a Mongolian poem from the territory of the Golden Horde written in Uighur script on birch bark. It consist of an allegoric dialogue between a fledgling and the mother bird, and the vivacity of the alliterative verses is felt even in the very fragmentary state of the manuscript.

Buddhist verses translated from Tibetan and a version of the *Alexander Romance* (probably translated from an Uighur version) were both copied in the same fourteenth-century manuscript found in the Turfan basin; Alexander's Mongol name, Sulqarnai (> Arabic Dhu 'l-Qarnayn), shows that the source of the Turkic (Uighur) original goes back to the Muslim Arabic tradition.

These and other, in many cases, fragmentary, monuments of the Mongol literature of the Middle Ages represent a great variety of forms, genres, topics and ideas, reflections of the cultural environment, the religions and the nations united by Chinggis Khan and his successors in Mongolia and southern Siberia, China, Tibet, western Asia and eastern Europe. The decline of the Mongol World Empire in the late fourteenth century marks the beginning of a long, dark period of decadence for literary activity. From the fifteenth century, which saw the internal wars of the Eastern and Western Mongols, only a few written monuments remain, such as a xylographed book with the Buddhist goddess Tārā's woodcut images, spells and prayers. It was in the late sixteenth century, with warfare still raging, that attempts to restore unity led to the renaissance of Buddhism and Buddhist literature as well as to the revival of Chinggis Khan's cult among the Mongols. Such unity was then lost again, but the art of the Mongol word, whether written or oral, religious or secular, has never ceased to delight the Mongol mind.

Part Four

THE LITERATURES OF NORTH-WESTERN INDIA

(C. Shackle)

The period between 750 and 1500 is in many respects one of transition in the cultural history of the peoples of the southernmost part of the Central Asian region, namely those of the Indo-Gangetic plains and the surrounding areas of present-day Pakistan and northern India. In the history of literature, as in that of other arts, these centuries came after the preceding Golden Age attained by classical Hindu civilization under the Guptas and their imperial successors. In their turn, they were followed by the Mughal period of the sixteenth and seventeenth centuries, which saw both the climactic phase of the high Indo-Muslim culture and the production of many of the classic works of Indian and Pakistani vernacular literatures. While the period 750–1500 is certainly not without its great literary achievements, these consequently tend to be rather heterogeneous in character, as well as often appearing in some degree of isolation from one another.

Both these characteristics are to be understood in relation to the complex transformations in cultural life associated with the large historical cycles of the period, which here assumed patterns considerably different from those in other parts of the Central Asian region. These began with the dissolution into regional kingdoms of the last substantial Hindu empire of northern India, that ruled by the Gurjara-Pratihāras of Kanawj. This later encouraged the Muslim conquests from the north-west. These in turn progressed towards a re-establishment of centralized authority, now under the Sultans of Delhi, until the overstretched Tughluq empire again broke up into local states, characteristically under Muslim rulers though mostly with largely non-Muslim populations. On the one hand, therefore, the profound cultural consequences of the transition from Hindu to predominantly Muslim political authority were inevitably reflected in marked changes in the typical languages, styles and contents of literature. On the other hand, these changes themselves naturally resulted in the loss of many texts, with the consequence that the literary history of the period is not only complex but also necessarily very incomplete. The surviving literature is therefore here described in terms of broad generic categories which cut across regions and languages, after the immediately-following initial sketch has served to acquaint the reader with the important shifts in the types of language used for literature during the period.

Literary languages

In India, choices of literary language have often been expressions of religious allegiance. This process began with the rejection of Sanskrit, seen as the language of the Vedas, by Buddhists and Jains in favour of the then more colloquial Pali and Prakrit. It was therefore natural that the re-establishment of Brahminic Hinduism should have supplanted these later Indo-Aryan languages with a revival of Sanskrit – which had long since ceased to be a spoken idiom – as the dominant cultural and literary language of northern India. Although the spread of Muslim political authority led to its place largely being taken by Persian, Sanskrit continued to be the medium of significant works until at least the thirteenth century, especially in such peripheral regions as Kashmir and Bengal.

Around the beginning of our period, a closer approximation to the spoken languages of the time had already been achieved with the literary cultivation (particularly in western India, where Jainism remained influential) of the post-Prakrit form of Middle Indo-Aryan called Apabhramśa. Over the centuries Apabhramśa (the 'fallen away' language) soon became a fossilized literary idiom, although some features of the sophisticated lyrical poetry for whose composition it was typically reserved – such as the regular use of rhyme – are quite distinct from Sanskrit literary norms and look forward rather to the later lyrical traditions of the New Indo-Aryan languages.

The literary cultivation of these vernaculars as early as the tenth century is indicated by stray disparaging references in Sanskrit texts to poets composing in *bhūtabhāshā* ('demon language') instead of the recognized standards of Sanskrit, Prakrit and Apabhramśa. It was, however, the Muslim conquests which eventually provided the decisive impetus for the development of the vernacular literatures through their abolition of the cultural hegemony of the Sanskritic literary norms which were so closely associated with the stifling prestige of Brahminic authority. As the imported standard language of an élite religious minority in India, Persian (considered in Chapter 13, Part One, above) was only partly fitted to replace Sanskrit as an all-embracing literary medium. For many more popular types of verse – including lyrical, romantic and heroic poems – the regionally diverse New Indo-Aryan languages came to be used, with preserved works becoming increasingly numerous from *c.* 1300 onwards.

These include early forms of such presently well-distinguished languages as Bengali, Sindhi, Panjabi or Kashmiri (besides the neighbouring languages of the Iranian family, Pashto and Baluchi). It is to be noted, however, that some of these languages are much less securely attested for the pre-1500 period than is sometimes suggested by the natural enthusiasm of some indigenous scholars for establishing the earliest possible date for the origins of their particular literature. A more rounded picture can be gained through comparing the individually isolated works of one literature with those composed in other languages.

These also, most importantly, include those languages of the Gangetic region which have nowadays often come somewhat confusingly to be classed as dialects of Hindi. From west to east, these languages are Rajasthani; the Khari Boli of the Delhi region, which is the ancestor of both modern Hindi and Urdu and was even then drawn upon as a cross-regional vernacular lingua franca; the Brajbhāshā spoken to its south-west; then the eastern Avadhi and the Maithili of Bihar.

The courtly heritage

Being both overshadowed by the supreme achievements of the classical period of Kālidāsa and his contemporaries and subsequently marginalized by the rise of the vernaculars, later Sanskrit literature tends to receive understandably scant attention from literary historians. Its vast bulk alone, however, certainly far exceeds the quantity of literature produced in all other Indian languages throughout the centuries under review. Much of this bulk is the product of commentators, encyclopedists and anthologists more notable for their industry than their originality. Much of the rest is distinguished only by an ingenuity alien to the taste of later generations, like the eleventh-century *Rāmapālacharita*, which celebrates the achievements of King Rāmapāla of Bengal in such a way as to let each verse also be interpreted as a description of the exploits of the divine hero Rama.

Certain works of the period are, however, rightly recognized as literary achievements of the first rank. In a literary tradition remarkable for its general indifference to history (hence the uncertainty as to the dates of most of its authors), the most original is Kalhana's unique *Rājataranginī*, a great verse chronicle of the kings of Kashmir composed in the twelfth century, which is notable both for its individual vignettes and for its powerful evocation of the operations of fate through time. Remarkable in a quite different way is an eleventh-century masterpiece from Kashmir, Somadeva's *Kathāsaritsāgara*, a colossal assemblage of interlinked stories of every conceivable type told in the most elegant verse. If only because of its bulk, this is less approachable than the *Hitopadeśa*, a collection of prose fables with inserted verses which was composed on the basis of the famous *Pañchatantra* as a primer of literary Sanskrit by the twelfth-century Bengali writer Nārāyana.

Although such great story-collections form one of India's major contributions to world literature, Sanskrit poetic tradition is dominated by the lyric. No poet of the period quite equalled the classical achievements of Kālidāsa in this genre, but the prolific Kashmiri poet Bilhana (*fl. c.* 1100) came close in his *Chaurapañchāśkā*, whose 50 verses describe recollections of a clandestine affair with a princess. For future poetic developments in medieval India, however, by far the most significant poem produced in Sanskrit was the twelfth-century

Gītagovinda. Composed in Bengal by Jayadeva, this is a post-classical collection of rhymed lyrics designed for singing, which owes more to Apabhramśa than to earlier Sanskrit example, and whose devotional subject-matter, the love of Krishna for the milkmaid Rādhā, was to exert a religious appeal far exceeding the precious bounds both of the Sanskrit courtly lyric and of the Persian *ghazal* which was to replace it.

The rise of the vernacular lyric

The early development of the vernacular lyric, whether in its secular or its devotional varieties, can hardly be reconstructed from the scanty materials which survive. A peculiarly interesting early glimpse of the overlap between Apabhramśa and the beginnings of New Indo-Aryan is provided by the *Rāulavela* (partially preserved in a central Indian stone inscription of *c.* 1050), a poem which describes different ladies of the court in verses whose language is recognizably appropriate to the regions they come from. Equally tantalizing, though for different reasons, is the *Sandeśarāsaka*, an isolated late Apabhramśa masterpiece (of Rajasthani or Panjabi provenance and dated *c.* 1200?) remarkable for the sophistication and freshness with which its artfully varied lyrics treat the familiar theme of a traveller to Multan being asked to convey messages from the poet to the beloved from whom he is separated.

In terms of cultural history, the *Sandeśarāsaka* is also particularly notable as the work of a Muslim poet, called Addahamāna, i.e. ᶜAbd al-Rahmān. Early Muslim participation in indigenous Indian poetic traditions is otherwise not well attested, although the Lahore court poet Masᶜūd-i Saᶜd-i Salmān (1059–1121), chiefly remembered for his Persian *qasīdas* (odes) and *habsiyyas* (prison poems), is said also to have composed a *dīwān* of poetry in 'Hindī' or 'Hindawī', the Persian terms indifferently used to indicate almost any Indian language. Apart from the Sufi poets whose work is described in later sections below, the only notable Muslim author of the period associated with vernacular lyrics is the greatest Indian-born Persian poet, Amīr Khusraw of Delhi (1253–1325). His *Ghurrat al-kamāl* (1293) explicitly refers to his 'few Hindī poems' (*chand nazm-i hindī*), but most of the verse riddles (*paheliyān*) and other 'Hindī' poems nowadays ascribed to him seem of doubtful authenticity and marginal quality.

The one indisputably great vernacular lyricist of the period is Vidyāpati (*fl. c.* 1400), a Brahmin poet associated with the Hindu kingdom of Mithila in Bihar. His *Kīrtilatā*, elegantly describing a visit by one of its rulers to the neighbouring Muslim state of Jawnpur, is written in a modernized type of Apabhramśa (termed by him *Avahattha*), which includes both Sanskritic and Persian loanwords. Vidyāpati is, however, above all famous for his extraordinarily fresh and musical lyrics in his native Maithili, whose predominantly secular sentiments belie their seemingly religious guise, for all the fact that many

revolve around Krishna and Rādhā. For a truly devotional harbinger of the Krishnaite lyric which was to become so dominant a genre in *Brajbhāshā* and many other Indian literatures during the following period, one must rather look eastwards to the cycle of ecstatic Bengali poems by the fifteenth-century poet Chandīdās known as the *Śrīkrishnakīrtana*.

Early romances

While the devotional aspect of the lyric aligns it with the religious epic, the latter did not give rise during the period to genuine re-creations in vernacular languages which would transcend the status of such popular adaptations of the Sanskrit *Rāmāyana* as that executed into Bengali by Krttibās (fifteenth century), or into *Brajbhāshā* by Vishnudās in 1442. More notable literary achievements were to result from the closer literary links between the lyric and another narrative genre, namely the verse romance. The classic handlings of local folk romances, however – whether these furnish the basis of verse narratives or the symbolic imagery of secular or mystical lyrics – mostly date only from Mughal times. Although many of the romantic tales which were thus to receive later literary shaping were indeed probably in oral circulation at this period, it would therefore be misleading to extrapolate such material back to it, in a necessarily uncertain attempt to reconstruct the repertory of contemporary oral tradition in such languages as Panjabi or Sindhi.

Indications of the likely nature of this tradition are provided by a few surviving texts. One is the anonymous popular Rajasthani cycle of *Dholā-Mārū*, which describes how Mārūnī of Pugal sends a message to Dholā whom she married as a child. For a while detained in Narvar by his other wife Mālvanī, Dholā crosses the desert on his camel and, after several adventures, brings Mārūnī safely back to Narvar. Significantly, this story is glimpsed rather than fully narrated in the oldest versions, which consist of succinct isolated couplets (in the *dohā* metre shared by Apabhramśa with most New Indo-Aryan literatures), which would doubtless have been linked by improvised narrative in performance by professional minstrels. Rather more courtly shaping has gone into another Rajasthani romance, the *Vīsaldevrās* (*c.* 1450) by Narpati Nālha, which describes the separation suffered soon after their marriage by a princess from her husband, the Rajput prince Vīsaldev; in this, the stock cast of romantic characters, such as confidantes and messengers, is enlivened by a rather vivid royal mother-in-law.

For the transmutation of folk story into literary masterpiece, another element was required, provided in only one vernacular work during the period under review. This was the *Chandāyan* (1379) written in Avadhi by one Mawlānā Dāwūd, a Chishtī Sufi who used the artistic example of the Persian *mathnawī* (poem in couplets) to reshape the tale of the love of Lorik and Chāndā

as a spiritual allegory. Having no surviving predecessors or immediate successors, Dāwūd's great achievement was to have effected the classicizing of the love-story (*premākhyān*) without losing all the freshness of its folk origins or the rich details of its Indian setting, the last being carefully preserved in the ordered sequence of its cantos (*khand*), each consisting of a *chaupāī* followed by a *dohā*. Only in the sixteenth century was the remarkable model of the *Chandāyan* to be matched by still greater masterpieces of the genre.

Heroic poetry

The many wars of the period, mostly associated with the long process of Muslim conquest, naturally provoked much heroic poetry. On the side of the conquerors, Persian was the main medium of celebration, and many a *qasīda* or *mathnawī* was composed in honour of their victorious kings by the court poets, most memorably by Amīr Khusraw, the panegyrist of seven sultans.

Vernacular poetry was therefore left with the task of celebrating the glorious defeats of the Delhi Sultans' noble Rajput opponents. The greatest of these was the climactic defeat in 1192 at the hands of the forces of the Ghurid sultan Muhammad of Prithvīrāj, the last Chauhān Rajput ruler of Delhi, whose court bard Chand Bardā'ī is the putative author of the *Prithvīrāj-rāsau*, the greatest Hindi heroic poem, filled with descriptions of battle. The origins of the poem, which exists in several recensions of different length, are certainly somewhat later and are connected with the bardic traditions of Rajasthan. These traditions gave rise to a large literature on subsequent struggles, typically culminating in the mass self-immolation (*jauhar*) of the ladies of the Rajput leaders, as happened after ʿAlā al-Dīn Khaljī's conquest in 1301 of the fort of Ranthambor commanded by the Chauhān Hammīr, celebrated not only in Hindi and Rajasthani bardic poems but even in a late Sanskrit epic, the *Hammīra-mahākāvya* by the Jain monk Nayachandra Sūri. A later episode in the same war, the defeat of the chivalrous Kānhadadev of Jalor and the *jauhar* of his queens, is the subject of an epic masterpiece of early Gujarati literature, Padmanābh's *Kānhadade-prabandha* of 1456.

Comparable bardic traditions may certainly be supposed to have existed at this time in many other languages, but only indirect evidence is available, often from a much later period. In Panjabi, for instance, the strophic form called *vār* was used for heroic ballads, but the earliest surviving texts are the religious adaptations by Guru Nānak and his successors in the Sikh *Ādi granth* (1604), whose rubrics nevertheless indicate the titles of the secular models whose tunes are to be followed. Many Panjabi heroic legends are, however, known only from the work of nineteenth-century folklorists, like the great cycle constructed around the legendary Raja Rasālū of Sialkot, supposedly related to the pre-Ghaznavid period. Similar considerations apply to the tribal ballads in Baluchi,

of which a large number related to the great fifteenth-century Mīr Chākur Khān and the subsequent war between the Rind and Lāshārī tribes. In Pashto, nothing appears to have survived from this period, in spite of the claims sometimes advanced for the authenticity of the poetry – including both heroic and devotional verse – cited in the *Pata Khazāna* (1729) by Muhammad Hotak of Kandahar, which purports to be a biographical dictionary (*tadhkira*) of Pashto poets dating back as far as the eighth century.

Didactic verse

The earliest living classics of many literatures of the region consist of didactic verses devoted to more or less heterodox teachings, for whose expression the hierarchies of language (earlier referred to as so enduringly typical of Indian civilization) made the vernaculars a natural medium of expression. The earliest of these collections of verses, like the semi-Tantric Old Bengali *Charyāgīti* (*c.* 1200?) or the crabbed Hindi couplets expounding *Nāth-yoga* teachings which are known as the *Gorakh-bānī* (*c.* 1350?), are of greater interest as philological or religious texts than as literary creations, particularly given their great reliance on the paradoxical juxtaposition of incongruities (*ultābāmsī*).

While also employing similar devices, the collections which have continued to enjoy a much wider currency than these rely far more on such more readily appreciable resources as proverbial sayings, often vivid details drawn from daily life, and a simple and direct lyricism. It is thanks to these elements, rather than her use of the technical terminology of Shaivite *Hatha-yoga*, that the short verses (*vākh*) of the poetess Lal Ded (*c.* 1350) continue to be cherished as the earliest classics of Kashmiri literature, where their status is approached only by the more overtly didactic work (*śrukh*) attributed to Shaykh Nūr al-Dīn (d. 1438), the revered founder of the unorthodox Rishī order of Sufis.

Elsewhere in medieval India, the use of vernacular languages for the composition of occasional verses by other Sufi teachers is occasionally attested in the vast Persian hagiographic literature of the period. For Hindi, this tradition begins to be fully attested only with the colonial extension of the language to the Deccan from the early fourteenth century, particularly in relation to Khwāja Bandanavāz Gesūdarāz (d. 1422) and the Chishtī spiritual dynasty which stemmed from him. It is with these Sufis and such contemporary writers as Fakhr al-Dīn Nizāmī, author of *Kadam rāo padam rāo*, a rather artless vernacular *mathnawī*, that the Dakanī Urdu literary tradition begins. At a much earlier date, the great Chishtī saint known as Bābā Farīd Shakarganj (d. 1265) is reliably credited with the composition of verses in Panjabi, principally preserved in the later *Ādi granth*, compiled by the Sikh Guru Arjan in 1604. As is the case with all these assemblages of early didactic poetry, probably not all the

verses attributed to Farīd – who came to be regarded as the founder of Panjabi literature – are authentic, and their dialectal base also seems likely to have been altered from an original Siraiki (Multani) base.

Similar factors have governed the transmission of the hymns (*ginān*) of the Indian Nizārī Isma^cili community, which are especially remarkable for their free use of Hindu concepts and images to interpret Isma^cili ideas. The formative teacher in this tradition is Pīr Sadr al-Dīn (d. 1416?), the language of whose compositions has not only been much modernized over the centuries, but also modified by conversion from its original Siraiki and Sindhi base to Gujarati forms more intelligible to the modern Isma^cili community.

Their preservation through sixteenth-century collections which finally entered the *Ādi granth* has ensured a rather more reliable transmission for the verse of the Sants, the great teachers of the popular *nirgun bhakti* tradition that is one of the most striking responses of the medieval Hindu world to the challenge of Islam. Mostly of low-caste origin and illiterate, the Sants used their 'holy men's jargon' (*sādhukkarī*), a combination of the Khari Boli Hindi of the Delhi area with forms from the surrounding languages, for verses and hymns whose rough-hewn power spread their teachings of the necessity for devotion to the One God without adherence to the misguided orthodoxies of either Brahminic Hinduism or Islam. The first of the major Sants was Nāmdev, a fourteenth-century calico printer from Maharashtra, but by far the greatest was Kabīr (d. *c.* 1450), a nominally Muslim weaver from Benares, who is particularly notable for his mastery of the gnomic *dohā*. Called *sākhī* (witness), Kabīr's verses – whose continued oral circulation evidences their enduring status as one of the formative elements of the popular culture of the vast Hindi region – provide marvellously pithy asides on the human condition, with particularly sardonic reflections on religious hypocrisy. Though less trenchant than those of Kabīr, their own more tender quality has assured a continued popularity for the humbler Hindi lyrics of his follower Ravidās (or Raidās).

If the apogee of the Sant tradition is in many ways reached after the close of this period around 1500, in the magnificent hymns of Guru Nānak (1469–1539) which begin the Sikh tradition, this is entirely in keeping with the general cultural trends of the time, which made the sixteenth century the definitive start of the greatest vernacular literary achievements in this region.

Part Five

THE KYRGYZ EPIC *MANAS*

(R. Z. Kydyrbaeva)

The epic *Manas* is a classic example of the oral poetic culture of nomads. It can be seen as an imaginary history of the Kyrgyz people, in which myths, fairy-tales, legends and historical events are inextricably interwoven. It is a unique key to the folk memory of the Kyrgyz concerning the deeds and exploits of their ancestors; it is also their forebears' legacy of honour and valour, of dignity and loyalty, and of love for their land, the land of their birth. Unlike the epics of many other peoples, *Manas* is entirely in verse and in its most monumental versions, formed by the trilogy *Manas, Semetei, Seitek*, it contains 500,000 lines. In sheer volume it exceeds many of the world's most celebrated epics. *Manas* has been transmitted orally from generation to generation and evolved as a many-layered work through the efforts of talented bards, known as *manaschi*. In the process of transmission it has expanded into a huge poem, absorbing fresh historical events and characters and subjecting them to the conventions of epic narrative, thus making the composition more complex.

The first known written reference to the epic is in a manuscript by a mullah, Sayf al-Dīn, *Majmū*ᶜ *al-tawārīkh* [Compendium of Histories], written probably in the period from the fourteenth to the sixteenth century. In 1856 the Kazakh orientalist C. C. Valikhanov set down an episode, *The Funeral Banquet in Commemoration of Köketei*,[23] and in 1885 V. V. Radlov published the Kyrgyz text in Russian transcription with a parallel translation in German.[24] From the 1920s, versions of the epic were already being systematically recorded from the words of story-tellers, such as Sagymbai Orozbakov, Sayakbai Karalaev, Tynybek Zhapiev, Togolok Moldo and Moldobasan Musulmankulov. Incomplete editions of different versions were published separately.[25]

In the recent past, in the nineteenth and early twentieth centuries, the story-telling tradition of the Kyrgyz people was apparently widely developed and found in every part of what is now Kyrgyzstan. At that time, the Kyrgyz had not yet lost a keen interest in their epic, which survived in all its magnificence and monumentality. The nomadic way of life of the Kyrgyz, with its patriarchal foundations, was responsible for the vitality of their epic memory as against other manifestations of spiritual culture. The ancient legend, alive and flourishing, and with all the specific characteristics of oral narratives, crossed the threshold into the twentieth century and in the early 1900s still very much

23. Valikhanov, 1961.
24. Radlov, 1885.
25. Anon., 1978–82; 1984–91.

retained its place in the spiritual life of the people. Unfortunately, many of the story-tellers' names are known to us only through folk tradition, although the history of the Kyrgyz art of improvisation does record several names of well-known story-tellers who worked *c.* 1900. The last 100 years or so have brought us the names of such outstanding *manaschi* as Kel'dibek, Akylbek, Nazar, Tynybek, Balyk, Dyikanbai, Zhandake, Donuzbai, Suranchi, Chonbash, Tel'tai, Kalmyrza and Choodon. The direct successors of this unending tradition of story-tellers in the Soviet period were Choyuke, Mambet, Sagymbai, Sayakbai and the still-thriving Shaabai, Khava and Seidene. In its present form, the epic is the product of the artistic transformation of Kyrgyz history.

The United Nations declared 1995 the year of *Manas* and in that same year the Kyrgyz Republic celebrated the epic's accepted millennium, attesting to the enormous significance of the epic in the spiritual life of Kyrgyz society. The ideas of the fight for independence, for the unification of the Kyrgyz clans and tribes and for the free country, bequeathed by their ancestors, the land of Talas Alatau, have taken on new meaning and coincide in some measure with the tasks of contemporary Kyrgyzstan, and this is why the ideas rooted in *Manas* resonate with particular significance even now. A new interpretation and reading of the epic have paved the way for a revival of spirituality through a return to the sources which created that spirituality, and for the acknowledgement of lost traditions and customs.

The most important episodes of the epic are the following: the birth and childhood of Manas, the hero's campaigns, his marriage to Kanykei, Koketei's wake and the poisoning of Manas by his Kezkaman relations. The whole spirit of the epic centres on the idea of unification, an idea that runs through *Manas*. It constantly stresses that fragmentation and intestine strife are signs of weakness:

> Terrible is the fire that flares in the soul,
> Terrible the foe who is one of your own . . .
> (*trans. S. Karalaev*)

The first part of the trilogy concludes with the defeat of the warrior hero Manas in Peking, China, leaving Almambet, Syrgak, Er Kokcho and Er Toshtyuk, his most courageous and loyal followers, dead and Manas himself mortally wounded. This ending leads on naturally to the continuation of the epic cycle. In Manas' testament there is talk of tribal feuding and the weakening of the power of the Kyrgyz people, united by Manas. The birth of Semetei, son of Manas, already prefigures future revenge for the defeat of his father. This is the origin of the second part, *Semetei*, linked by idea and subject-matter to the first, and containing the exploits of Manas' son and of his comrades-in-arms, who manage to defeat foreign invaders. The third part of the trilogy, *Seitik*, is an epic narrative about internecine fights in which Semetei's son, Seitek, restores justice among the Kyrgyz clans. The portrayals of Semetei and Seitek reflect

the popular desire to preserve the legends of Manas in the heroic lives of his descendants.

To varying degrees, the epic mirrors actual historical events which shaped the destiny of the Kyrgyz people. The early Middle Ages left their mark on the construction of the plot: the history of the Turkic Kaghanate and the period of the Mongol invasions, which coincided with the large-scale migrations and assimilations of peoples and tribes throughout Central Asia; it was also the period at which the Dzungarian Khanate was formed, which extended into the territory of Central Asia. As *Manas* continued to evolve, plot motifs connected with the theme of the Nogoi and the history of the Golden Horde (thirteenth–sixteenth century) were introduced into the epic. Nogoi Khan entered the family tree of the Manas clan, appearing in many versions as the grandfather of Manas; Dzakyp, Manas' father, is referred to as Nogoi's fourth son.

The beautiful and the ideal receive a distinctive treatment in which traces of the early epic can be detected, and these qualities come across particularly clearly in the description of Manas himself. Ideals determine the hero's behaviour, giving him epic strength, and throughout the narrative Manas displays his valour in every crisis. Ungovernability, excessive strength, unmotivated excesses of unruly behaviour are characteristic features both of Manas himself and of his followers, and these aspects of his character are constantly stressed:

> You say drink water, he drinks poison,
> You say take off your hat, he takes off a head,
> You say shed blood, he rips open a stomach,
> Never retreat in battle,
> Never run from death,
> Do not step back from an army seen . . .
> (*trans. S. Karalaev*)

Such 'exaggeration and excess' in the description of the hero goes with the concept of the ideal in the epic. The epic hero behaves with valour in various situations: in single combat and in mass battle scenes. The epic system of convictions and feelings is a product of its own internal aesthetic; the relationship to war cannot only be negative. When the epic describes battle scenes, it is not only depicting grief and death but the joy of victory and satisfaction with what has been accomplished – 'blood drained from the veins' of the enemy, 'tattered tents', 'broken wings', 'sliced-off lips', 'caved-in chests', all serve as celebrations of victory over the multitudinous forces of the opponent. Grief, death and triumph exist side by side, various and contradictory feelings coexist and mesh with each other.

Manas corresponds to the developed, classical form of heroic narrative but one that has not eliminated the ancient layers of a pre-state epic present within it, i.e. echoes of the archaic, oral art which is characteristic of primitive communal societies. There are many traces of pagan belief preserved in *Manas*,

such as belief in the magical powers of objects and words. Many echoes of the shamanism so widely prevalent in the epic works of the peoples of Central Asia are also reflected in the Kyrgyz epic. These rudiments of shamanism are most often to be found in the set pieces which have become part of the work's artistic system, such as *alkis, kargish* (blessings, curses), *arman, kereez* (pity, testament) and, to some extent, *kosh ok* (ritual lamentations). These set pieces may have constituted the basis, the primary material that has contributed to the formation of the epic genre.[26]

Of all the forms of shamanistic art, it was the art of words that took on a stable form. The word proved to be the richest in content and the most versatile, contributing thereby to the development of the artistic genres of ceremonial poetry. Ceremony and ritual poetry, crystallized in the depths of shamanistic mysteries, also, in various forms, accompanied the progress of the epic's plot: birth ceremonies and namings, marriage and funeral rites, various kinds of blessings and curses. All of them are consistent with a spirit close to that of the shamanistic spell. Without these scenes the epic would lose one of the most important elements illuminating the everyday and battle scenes, as well as the ordinary course of events.

The poetics of shamanistic folklore are most clearly revealed in monologues, where curses are proclaimed, sending down the evil eye, bringing disaster on the enemy or on trouble-makers within the clan. In the Kyrgyz folk consciousness, and more specifically in the epic, there is a belief that the worst harm that can be done to a person is delivered through a curse from the mouth of an old person or woman with warts on the palate or in the throat, or a particular mark on the pupils. The wife of Manas, Kanykei, had a wart on her tongue, and so everyone was wary of falling under her *kargish*, for *kargishi kata getpegen* ('her curse was never mistaken'), as the epic says. It was known that, depending on the circumstances, words uttered by shamans might be sources of succour as well as of terrible tyranny. In *Manas*, this particular role played by words is not lost as, in rage at his own friend, the hero Manas utters such curses:

> You shall not delight in your *bajge*, but eat your own fat,
> and drink the blood of your own heir,
> You shall not delight in winning races,
> but eat the liver of seven of your forebears!
> (*trans. S. Orozbakov*)

This allowed elements of shamanism (plot, rhythm, magic ceremonial) to be incorporated into the epic. It should be pointed out that the pagan layer in the

26. Divaev, 1889, p. 10; Korogly, 1972; Kyrgyz, 1993, p. 6; Radlov, 1989, pp. 366–7; Valikhanov, 1961, p. 487; Vasilevich, 1969, p. 164; Zhirmunskiy, 1962, pp. 270–1.

epic dominates the much later Islamic layer. In the features of the characters and the description of the landscape, in the nature of the formulaic, fixed poetic style, in explanation of the cosmogonic world and categories of space and time, in the nature of the syncretic unity of mythology and reality; in brief, throughout the basic system of artistic thought and vision of *Manas*, there is a close connection with the epic world of the Central Asian peoples. Therefore, it would be wrong to look at the Kyrgyz epic in isolation from the Central Asian epic tradition as a whole. In the history of the oral poetic culture of the nomadic peoples of Inner Asia there were periods of high achievement, linked to the history of the Turkic tribes; this occurred in the sixth to the tenth century, when the tribes settling the region came together in a powerful union and laid the foundations of the Turkic Kaghanate (see Volume IV, Part One, Chapter 9).

Altai, the birthplace of the Kyrgyz hero Manas, is the land which, according to the epic, was 'irrigated at his birth with the blood of his umbilical cord'. It was in this region of Central Asia that the pre-epic, original archaic plot of the Kyrgyz epic was created, leaving a profound impression on its entire artistic structure. In almost all the versions of *Manas*, one repeatedly finds persistent models, which in many ways resemble the inscriptions in the ancient Turkic so-called runic script, for example:

He was himself beneficial,
Forty-two years was he Khan,
Gathered solitary kites and turned them into [worthy] birds,
Gathered slaves and turned them into a people,
Gathered gold [so much] that like stones they [lay scattered],
All that wandering people
He made into a great nation . . .
(*trans. S. Orozbakov*)

The very text of the epic, its compositional structure and stylistic qualities evoke the eulogy of Köl Tegin by Bilge Kaghan: 'Then, by the grace of Heaven, and because of great fortune, I came to rule over the realm as Kaghan. Once Kaghan, I fully raised [gathered] the fallen, poor people I made rich, and a people who were few I made many.'[27]

Both texts are about the head of the clan, the tribe and the people: in the first, 'Khan', in the second 'Kaghan'. Both texts refer to a wandering, scattered people, small in number, which, under the wise leadership of the Khan or Kaghan, becomes 'many' and 'forty tribes' (in the epic), an 'exhausted people' and a 'people dragging out an existence like that of a slave' (in the epic), rising up and acquiring prosperity thanks to the endeavours of its leader. In both cases, events are set out by means of stylistic parallels: 'a poor people I made

27. Malov, 1951, pp. 28, 35.

rich, a small people I made many', 'gathered solitary kites and turned them into [worthy] birds, gathered slaves and turned them into a people'. As can be seen, the individual poetic phrases and plot motifs of the Kyrgyz epic and the ancient inscriptions are identical in style. It is thought that the artistic and expressive resources of the inscriptions were drawn from a broadly based oral poetic culture, which had long used oral tributes.

The Kyrgyz epic has many similarities with Altaic, Yakut, Khakass, Tuvan and Mongol epics. Pan-Turkic creativity is evident in the representation of the thoughts, deeds and emotions and the external features of the characters, and in the development of the epic situations. The clearest correlation between the Kyrgyz and Altaic epics appears in the poetic presentation of complicated situations expressed in the form of laments (*arman*); the lament of the Altaic hero Alyp-Manash, who has been taken prisoner, is almost identical to the lament of Manas, poisoned by his own relatives, the Kezkaman.[28] The only difference in this instance lies in the greater detail of the Kyrgyz epic and the greater concision of the Altaic. As for the poetics of *koshok* (ritual lamentations), there is hardly any difference in terms of stylistic construction. The Yakut and Kyrgyz epics are, very probably, the only works of the Turkic-speaking peoples in which an all-engulfing cascade of external and internal alliteration is the driving force behind the rhythm and organization of sound. Identical devices in both epics express instantaneousness, swiftness, dexterity and speed. For instance, in the Yakut epic *Niurgun Bootur the Swift*, when the hero Kün Erbiya asks that the children be released 'to the middle, primordial Mother Earth', the old people are silent as long 'as it takes to cook meat';[29] in the Kyrgyz epic a similar turn of phrase serves to highlight the swiftness and dexterity of Manas, who is able 'in the time it takes to cook meat' to defeat the enemy's forces. There is much in common between the Yakut and Kyrgyz epics as regards the description of the hero's appearance, his physical strength, morose air and god-like aspect.[30]

While the Altaic and Yakut epics come close to the Kyrgyz work mainly in terms of poetics and stylistics, *Manas* resembles the Mongol epic in terms of individual plot motifs. In the original historiographical work of the Mongols, the *Altan tobchi*, the names Usun and Koke Chos are mentioned, honoured by Chinggis Khan with the title *beki* because they 'did not conceal what they heard or saw, nor did they hide or suppress but always revealed'.[31] It is hard to resist the temptation to compare this episode with the *Manas* characters Usen and Kokchokoz, who were victims of Kalmuck raids: snatched from the Kyrgyz, they were eventually assimilated by the Kalmuck. Subsequently, thanks to the unificatory endeavours of the hero Manas, they were returned to the Kyrgyz

28. Anon., 1985.
29. Anon., 1947, p. 78.
30. Kydyrbaeva, 1980, pp. 56–62.
31. Anon., 1973, p. 154.

and lavishly rewarded with land, livestock and household goods and chattels by Manas. As they had taken on the appearance and habits of the Kalmuck, Manas arranged the Muslim ceremony of circumcision, so as to purify them of 'unclean pollution'. Manas' power, his fearlessness and valour aroused the envy of Kokchokoz's family and they secretly prepared to poison the hero. It is possible that they are the very same Usun and Koke Chos who 'did not conceal what they heard or saw' from Chinggis Khan, that is, they were secretly informing the Mongols of Kyrgyz plans. This motif evidently developed on the basis of some actual event in Kyrgyz-Mongol relations and then found expression in the epic.

With the passing of time, the epic increasingly incorporated accounts of actual historical events. Proof of this can be found in the events described in the *Majmūᶜ al-tawārīkh*, in which history is interwoven with elements from folk legends and epics. The work probably dates from the fourteenth to the sixteenth century, and is the first written source in which *Manas* is mentioned and the events of the epic dealt with as real history. Written by the mullah Sayf al-Dīn of Akhsikent, it depicts Manas fighting on the side of the Muslims against the Kalmuck Dzholoi, and converting the captured prisoners to Islam. It was a time of intensive Islamic indoctrination in a nomadic pagan environment, and this had several implications. The Turkic-speaking culture of the period began to be exposed to the influence of the Arab and Iranian cultures and languages. Gradually, as the influence of Arab-Iranian literature grew, many Turkic poetic works were consigned to oblivion. It was at this time that the figures of Rustam and of Iskandar (Alexander the Great) were introduced into *Manas*. Many Islamic motifs were brought into the epic just as the nomadic and settled cultures were coming into contact with one another, forming strange combinations with pagan themes. According to E. G. Yakovlev:

> In various regions and at different historical periods Islam and the national cultures of the peoples who came within its sway interacted with and influenced each other. Yet even where Islam came closest to the depths of the popular and mythological artistic consciousness, it could not accommodate or assimilate the original and inimitable features of the cultures of those peoples.[32]

The clashes and interaction between the pagan, epic world and the world of Islam assumed rather distinctive forms. Thus respect for old people, in particular grey-bearded old men, which is the everyday ethic of nomads, was widely reflected in the epic in the depictions of Koshoi and Bakai. Onto the personal qualities of the sage and mentor, fresh qualities drawn from Islamic ethics, such as a saintly and prophetic aura, were successfully superimposed. Hence in the

32. Yakovlev, 1985, p. 197.

epic, the figure of the old man Koshoi, the comrade-in-arms of Manas, is characterized by such basic qualities as wisdom, outstanding heroism, bravery and shrewdness, and it is thought that the new, more religiously related qualities such as those mentioned above were added when Islam was introduced. The borders are blurred between the established image of the hero and the newly assimilated quality of Islamic holiness. A shift occurred within the artistic system, with the imperceptible introduction of aesthetic changes into the very heart of the epic. Henceforth, shining heroism was not the only virtue extolled, nor was the hero's external appearance – so terrifying to the enemy – the only focus of hyperbole: the qualities of the saint and the prophet, and the hero's ability to deal with his spiritual mentors were also praised. The latter aspects of the image took root because qualities such as the sagacity of an old man made wise through experience had originally been stressed in the figure of Koshoi.

The Kyrgyz heroic epic *Manas* came into being and developed over the many centuries of the Kyrgyz people's complicated and arduous history. It mainly took shape in two major ethno-cultural regions, southern Siberia and the more Islamized Central Asia. At every historical stage in its development, there are clear genetic and typological links between it and the extended pan-Turkic epic heritage. The time-span played a not insignificant part in the evolution of the epic genre and the transformation of its images and its plot motifs.

16

Arts and crafts

A. A. Hakimov, E. Novgorodova and A. H. Dani

Part One

Arts and crafts in Transoxania and Khurasan

(A. A. Hakimov)

The period from the eighth to the sixteenth century was extremely prolific in terms of its contribution to the history of art, and Khurasan and Transoxania participated in the formation and development of a new decorative style. The monumental painting and sculpture of earlier centuries, well represented among the works of these regions in the pre-Islamic period, entered a period of gradual decline starting in the eighth century. A figurative approach gave way to the decorative arts which became one of the dominant features of Islamic aesthetics, shaping the style of artistic craftwork and architectural design. This was to a great extent due to the fact that Islam as the dominant religion, unlike Christianity or Buddhism, declined to make use of painting and sculpture in order to propagate its ideas and that refusal determined their role in Muslim society.

Nonetheless, mural paintings and sculptures were still produced in the various towns of Khurasan and Transoxania almost throughout the period in question. In spite of the unity of the culture of these two regions, particularly in the pre-Mongol period, their schools of arts and crafts were distinguished by stylistic features, technological aspects and differences in the choice of themes and motifs. The present section deals with the development of the most common types of artistic craftwork and the surviving forms of figurative art in Khurasan and Transoxania.

Ceramics

From the ninth century, pottery was one of the most widespread of the crafts. Potters occupied large quarters of the towns in the region, producing both everyday ware and unique pieces, and Afrasiab, Chach, Ferghana, Merv, Nasa, Khwarazm and Nishapur were among the leading centres of ceramic production in the ninth to the twelfth century.

The pottery of the period may be divided into two main categories: glazed and unglazed ware. The unglazed ware can be subdivided into several groups on the basis of the techniques employed in its production. Vessels with moulded decoration were still common in the eighth and ninth centuries although, with



FIG. 1. Ferghana. Painted pottery (eighth century).
(Photo: Courtesy of A. A. Hakimov.)



FIG. 2. Nishapur. Glazed ware (tenth–eleventh century).
(Photo: Courtesy of Iran National Museum, Z. Rouhfar.)

the advance of ceramic technology, the archaic designs gave way to new ones. Stamped ware became widespread in the twelfth century, with that from Merv, the chief centre for its production in the area, offering a particular wealth of decorative design. A vast craft-workers' quarter has been discovered there with large quantities of pottery, mostly thin-walled mugs of grey clay and pot-bellied jugs, the surfaces of which appear to have been entirely covered by a woven pattern. Their bodies were made in *qālib*s (moulds). The decorative motifs were very varied: plant shoots, providing a background for birds, animals, scenes of royal receptions, mythical creatures and well-wishing epigraphic inscriptions. Combining these motifs, the craftsmen created ornamental patterns running horizontally around the bodies of the vessels.

Between the eighth and the twelfth century glazed pottery appeared in the towns of Khurasan and Transoxania, achieving a high level of technical sophistication. The main centre for glazed pottery in the latter province was Afrasiab, but the wares from Chach, Ferghana and Chaghaniyan were also well known at the time (Fig. 1). In Khurasan, the centres were Merv, Nasa, Abiward and, above all, the school of Nishapur whose glazed ware was similar in style to that of Afrasiab (Fig. 2). By the twelfth century, however, pottery of the Afrasiab type was found only in Transoxania (Fig. 3).

Afrasiab ware stands out not only in terms of the high quality of the clay body, the glazes and the colours, but also because of the refinement of its forms



FIG. 3. Transoxania. Afrasiab-type pottery bowl painted under a glaze (eleventh–twelfth century).
(Photo: © Hermitage/Terebenin.)

and patterns. The decorative motifs most frequently encountered are sprouting plants, pomegranates (flowers and fruit) and tulips. The letters of the epigraphic inscriptions are often transformed into vegetal patterns, as are the tails and beaks of birds. Geometric patterns consisting of wickerwork, squares and triangles are the principal decorative feature of many vessels. Pheasants, cocks, doves and ducks are among the most commonly depicted birds (Fig. 4), whereas the animals most often encountered are mountain goats, horses, cheetahs and lions. Compositions depicting fish, which possessed a religious significance, are quite frequent. All of these motifs regularly occur together on the same piece. Anthropomorphic and composite scenes are practically never found on Afrasiab pottery.

The decorative style employed on this ware developed in its own particular way. In the ninth and tenth centuries there was still a certain unity in the

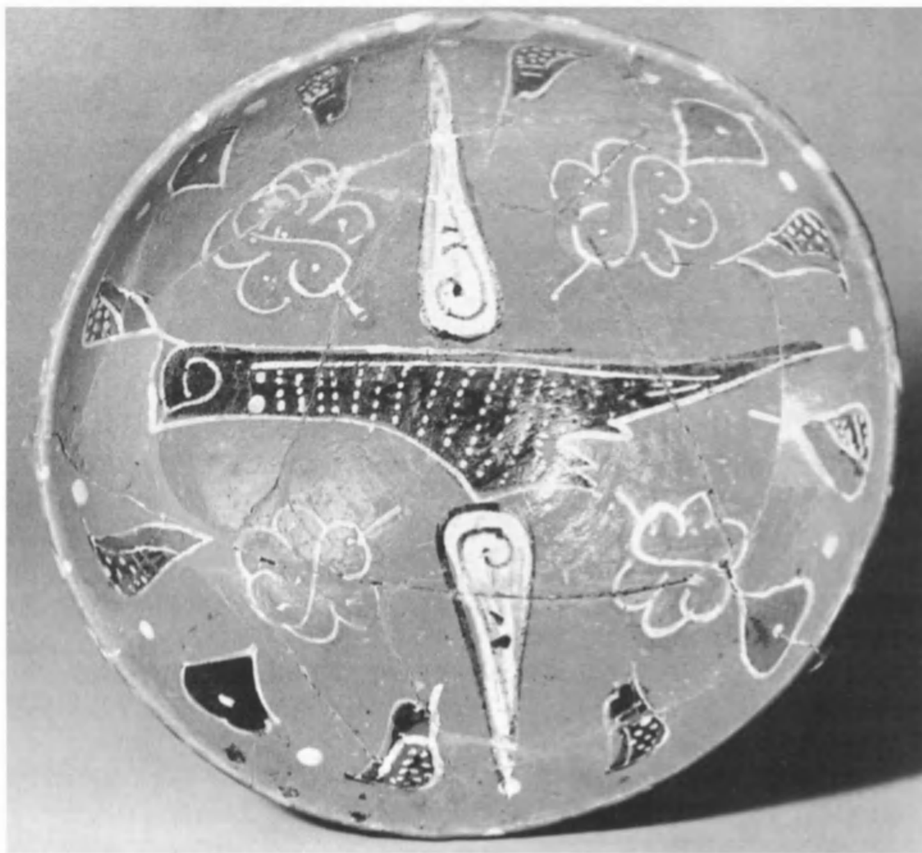


FIG. 4. Afrasiab. Pottery bowl painted under a glaze (eleventh–twelfth century). (Photo: Courtesy of A. A. Hakimov.)

draughtsmanship and a naturalistic approach to representation, although there was a tendency towards stylization. The eleventh century witnessed a fundamental stylistic transformation: the ornamental-decorative pattern became dominant and all other design elements were made subordinate to it. A typical example of this process is the transformation of birds or animals into decorative elements by means of stylization.

The potters of Khurasan and Transoxania achieved excellent results in their exploration of the decorative potential of colour on glazed ceramics. Particularly elegant are the round plates typical of Samarkand and Nishapur, with their white background to which a fine design was applied in the form of inscriptions or else stylized representations of birds or animals resembling letters of the alphabet (Fig. 5). The inscription occupied the rim of the plate and the remaining surface was undecorated, a feature which lent this ware a character-

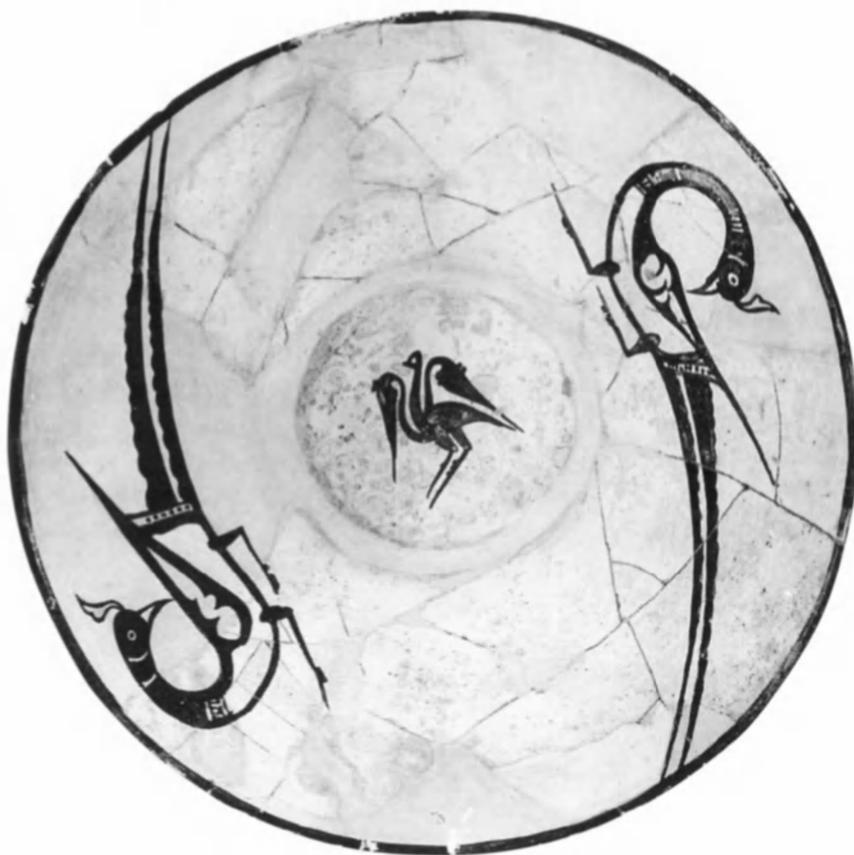


FIG. 5. Nishapur. Pottery bowl painted under a glaze with stylized representations of birds (tenth–eleventh century).
(Photo: Courtesy of Iran National Museum, Z. Rouhfar.)

istic appeal (Fig. 6). A high level of craftsmanship is evident in the glazed ware of the period, with a typical olive-green pattern on a white background or a black-and-white design on an ochre-brown background. Different glazing techniques played a particularly important part in the artistic effect achieved by glazed pottery; thus the transparent lead glaze imparted a particular gloss to the ware.

For all their similarities, the ceramics of Afrasiab and Nishapur differ in certain respects. Nishapur ware was influenced by the art of the central regions of Iran; this influence found expression in the iconography of the painting, which covered a much greater range of motifs, and also in the techniques employed and the style (see Fig. 7). We quite frequently encounter thematic compositions on Nishapur ware which are never found on pottery from Afrasiab.



FIG. 6. Nishapur. Pottery bowl painted under a glaze (tenth–eleventh century).
(Photo: Courtesy of Iran National Museum, Z. Rouhfar.)

In the thirteenth and fourteenth centuries, centres of ceramic art were re-established after the region recovered from the Mongol invasions, but the artistic and technical quality of the ware was inferior to that of the pre-Mongol period. Examples of glazed pottery from this period are in a rather unexpressive greenish-brown ware with a minute plant pattern.

The development of glazed pottery revived at the end of the fourteenth and in the fifteenth century. As a result of wide-ranging commercial links established with other countries across Timur's empire, a new type of ceramic ware appeared in Central Asia in the fifteenth century, imitating the imported Chinese porcelain and based on the use of a local silicate body and *kashin*. This porcelain-like ware was produced in various towns of Central Asia, including Bukhara, Shahr-i Sabz, Merv and Urgench, but the principal centre was Samarkand. Whereas the earliest examples employed copies of Far Eastern



FIG. 7. Rayy. Minai plate with a horseman (twelfth–thirteenth century).
(Photo: Courtesy of M. I. Mochiri.)

motifs and themes, the local craftsmen gradually began to introduce their own decorative elements and a new syncretistic style took shape. The decorative artist positioned birds, flowers, the mythical phoenix and wandering goats over the surface of the plates at will. In addition to this imitation porcelain, blue ware with a black underglaze design also circulated during the Timurid period, mainly in the form of common household items decorated with stylized vegetal patterns.

The difference between Timurid ceramics and those of the pre-Mongol period involved changes both in the colour of the ware and in the style of decoration. The artistic style employed on the warm-toned ceramics of the tenth to the twelfth century was replaced by the more graphic decorative style and colder hue of the blue Timurid ware. At that time, the craftsmen making glazed ware were also involved in the production of tiles for the façades of buildings. These tiles were among the most outstanding achievements of ceramic art in that period (Figs. 8, 9 and 10).



FIG. 8. Mashhad. Tile decoration of the southern *aiwān* of the Gawhar Shād mosque. (Photo: Courtesy of H. R. Zohoorian.)

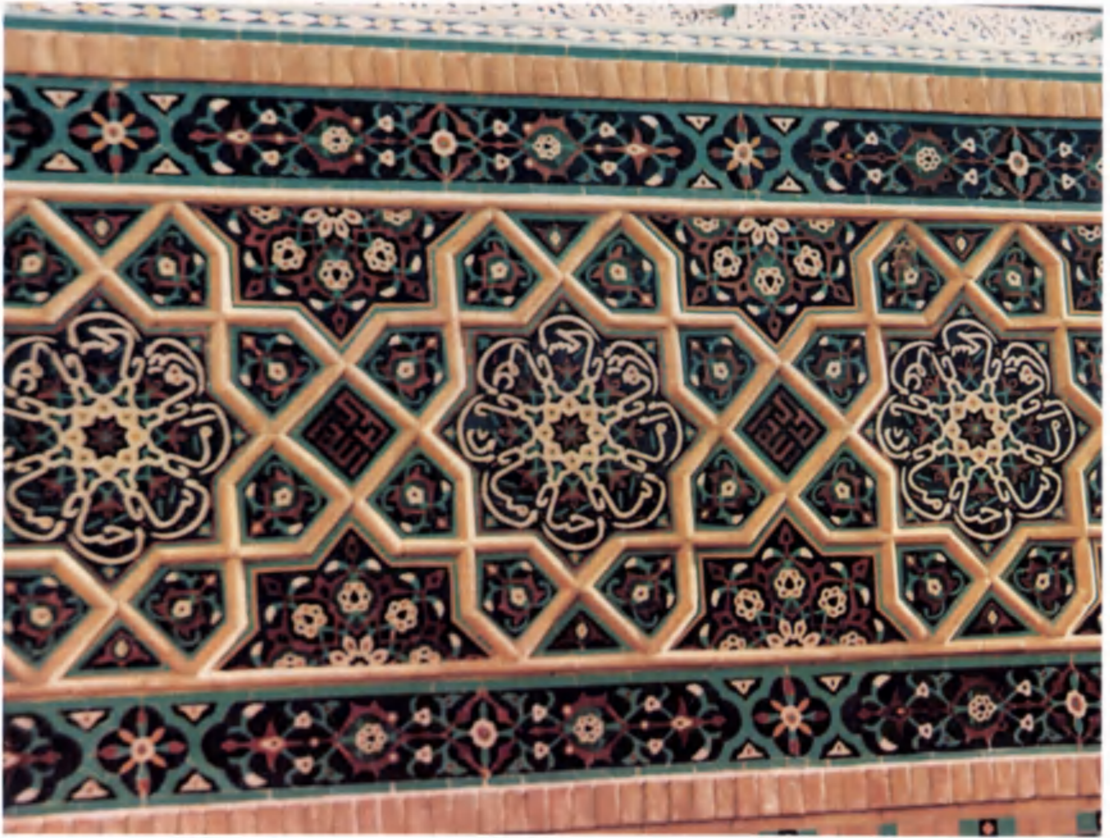


FIG. 9. Mashhad. Tile decoration of the western *aiwān* of the Gawhar Shād mosque. (Photo: Courtesy of H. R. Zohoorian.)

In the sixteenth century the artistic traditions of the previous century were still maintained in glazed pottery, but towards the end of the century the costly imported cobalt was replaced by pigments of a lower quality and the *kashin* body gave way to clay. This affected the entire appearance of the ware, which became coarser and thick-walled.

FIG. 10 (p. 421). Mashhad. Tile decoration of the Gawhar Shād mosque. (Photo: Courtesy of H. R. Zohoorian.)





FIG. 11. Samarkand. Silver jug partly covered with gold (seventh–eighth century). (Photo: © Hermitage/Terebenin.)



FIG. 12. Khurasan. Silver dish with relief decoration in the Sasanian tradition (eighth century).
(Photo: © Hermitage/Terebenin.)

Metal-working

The period from the eighth to the tenth century constituted the final stage in the development of the pre-Islamic, early medieval tradition of metal-working in Khurasan and Transoxania, but features of a new style were also taking shape. The magnificent silver-gilt artefacts produced at various centres in the two regions date from this period. There are well-proportioned jugs with narrow necks and wide pear-shaped bodies, spoon-shaped hemispherical cups and round flat plates and small jugs of various shapes decorated with relief, embossed and engraved ornament (Figs. 11 and 12). The themes represented on the artefacts still include pre-Islamic motifs going back to early Sogdian and Sasanian traditions, but the craftsmen subordinated these motifs to



FIG. 13. Silver jug (tenth century).
(Photo: © Hermitage/Terebenin.)



FIG. 14. Transoxania. Silver cup (tenth century).
(Photo: © Hermitage/Terebenin.)

decorative ends (Fig. 13). The elimination of the local artistic features that distinguished the different schools began at this time and a new, more unified style developed which reflected the trends of a new age. This can be clearly seen in the decoration of an elegant silver cup, made in Transoxania in the tenth century, the base of which depicts a bird-man holding a grapevine while an Arabic inscription in praise of wine circles the rim of the cup (Fig. 14). The traditions of the Sogdian style with its more substantial, plastic approach to form are fused in the design of this cup with the new style of the Islamic caliphate, based on clear rhythmic structures and decorative patterns.

The artistic style of the applied arts in Khurasan and Transoxania began to change from the middle of the eleventh century, as the decorative principle established its supremacy. New forms of bronze and copper artefacts also began to appear from that time: spherical jugs with engraved or faceted necks (Fig. 15), rectangular trays (Fig. 16), small cylindrical ink-wells and mortars, hemispherical



FIG. 15. Transoxania. Bronze jug (twelfth century).
(Photo: © Hermitage/Terebenin.)



FIG. 16. Transoxania. Bronze tray inlaid with silver (thirteenth century).
(Photo: © Hermitage/Terebenin.)



FIG. 17. Transoxania. Brass candle-holder (twelfth century). (Photo: © Hermitage/ Terebenine.)

cups and bronze mirrors. By the twelfth century they were decorated with stylized animals and birds intertwined with patterned designs. Engraving became the most common technique for the application of ornament, being best suited to achieving the smooth, carpet-like quality of pattern that was the standard during that period. Work in relief became increasingly rare (Fig. 17). The technique of incrustation with silver thread was used in Khurasan from the twelfth century onwards (Fig. 18), but never became common in Transoxania. The shift in style which occurred in the eleventh century affected more than just decorative techniques: the profile of the vessels also changed noticeably, developing



FIG. 18. Khurasan. Bronze-lidded bowl inlaid with silver.
(Photo: © RMN – Hervé Lewandowski.)

from unprepossessing, rather bulky outlines to more elegant, smoother contours and balanced proportions.

Particularly popular decorative motifs for the bronze ware of the eleventh and twelfth centuries included winged sphinxes and goats, griffins, human-headed birds, hunting scenes and enthronements. The animal world was represented by images of hares, dogs, fallow deer and cheetahs in hunting scenes and also by birds and fish shown in medallions with no thematic context. These engraved images consisted of individual cartouches or round medallions which formed a discontinuous ring around the bodies of tall jugs and hemispherical cups. The widespread use of geometric decoration and epigraphic inscriptions was an innovation. Over the course of time the inscriptions became stylized and indecipherable, transformed into a sort of 'graphic ornament' (Fig. 19).



FIG. 19. Dushanbe. Bronze dish with stylized inscriptions (twelfth century). (Photo: © Hermitage/Terebenin.)



FIG. 20. Herat. Bronze pot dated 1163 and (below) detail of its decoration. (Photo: © Hermitage/ Terebenin.)



The incrustation of bronze artefacts is practically never encountered in Transoxania in the pre-Mongol period, whereas the works produced by the craftsmen of Khurasan (Merv and Herat) provide eloquent testimony to their mastery of that technique. One of the masterpieces of medieval metal-working is a bronze pot from Herat which was made in the year 1163 (Fig. 20). The decoration covering the body of this round pot shows scenes from the life of dignitaries: the game of polo (*chawgān*), hunts, battles and banquets with musicians playing. Silver and copper incrustations make the design particularly effective. A wider range of motifs and techniques may be observed in the metal-working of Khurasan than in that of Transoxania. This can be seen, for example, in the frequent occurrence in Khurasan and the metal-working centres of Iran of three-



FIG. 21. Khurasan. Brass incenseburner inlaid with silver and copper in the form of a standing lion (eleventh–twelfth century).
(Photo: © RMN – Hervé Lewandowski.)



FIG. 22. Khurasan. Bronze candle-holder decorated with ducks (twelfth–thirteenth century).
(Photo: © RMN – Hervé Lewandowski.)

dimensional figures of birds and animals decorating the various parts of vessels and the use of relief ornament and incrustation (Figs. 21 and 22).

The influence of Iran is perceptible in Transoxanian metal-working during the post-Mongol period, when local craftsmen laboured increasingly to perfect their designs and refine forms. This can be seen in the techniques employed: incrustation with silver thread (Fig. 23) began to be practised at that



FIG. 23. Transoxania. Bronze candle-holder with silver inlay (fourteenth century).
(Photo: © Hermitage/Terebenin.)

time. Evidence of the artistic traditions expressed in this genre in the fourteenth and fifteenth centuries is provided by the bronze ware discovered in an engraver's workshop near the Registan in Samarkand, an accumulation of more than 60 artefacts for a variety of uses: pots, cups and jugs as well as lids and stands for vessels. New features have entered their design: miniaturized ornament, the use of incrustation and the appearance of thematic compositions in the decorative scheme.

The dominant feature in the design of Khurasan bronze ware of the fifteenth and sixteenth centuries is a minute vegetal motif which twines around the bodies of bowls, candlesticks and pots in horizontal bands and provides a ground for inscriptions. Figurative motifs are no longer present in the decoration of this group of wares: vegetal-geometric patterns have taken over, interwoven with epigraphic inscriptions (Fig. 24).



FIG. 24. Khurasan. Bronze pot with vegetal-geometric pattern (fifteenth century). (Photo: © RMN.)

Jewellery

The manufacture of jewellery, and also armour, constituted a separate branch of artistic metalwork. Archaeological finds from excavations in various medieval towns of Transoxania and Khurasan provide evidence of the level of development of the jeweller's art during the pre-Mongol period. Entire urban districts have been found which were occupied by jewellers and armourers. Women's jewellery, elements of horses' harnesses and of military equipment were made of gold, silver, copper, brass and other metals mined in the mountainous regions of Khurasan and Transoxania, and these might be ornamented with insets of emerald, turquoise, cornelian, chalcedony, garnet and crystal.

From the ninth to the twelfth century, jewellery shows the same stylistic changes as other artistic crafts. The growing use of vegetal and geometric patterns is perceptible in the design of many bronze amulet pendants engraved with representations of birds and animals. Artefacts cast in silver, bronze and copper became common: fasteners, belt-buckles, plaques, amulets and pins in the form of birds and animals, and serpentine bracelets. The articles of the period that have survived are mostly common everyday items made of non-precious metals or silver.

It is only possible to form an opinion of the jewellery that was manufactured from precious metals and stones on the basis of the historical chronicles and from artefacts of the post-Mongol period or contemporary miniature paintings. Diamonds, rubies, sapphires and pearls were the most valued insets in secular ornaments of the fourteenth to the sixteenth century, a period during which changes could be observed in both the forms and the style of jewellery. Heavy gold neck-pieces for men and solid crowns disappeared and attention switched to women's jewellery. As far as male attire was concerned, jewellers focused their attention on belt-buckles made of precious metals and stones and on robes and kaftans, as well as the decoration of various types of weapons and harnesses for horses.

Artefacts made of glass, bone and wood

In addition to earthenware and metal artefacts, articles made of other solid materials – glass, wood and bone – were also manufactured in these regions, as was fine-quality paper.

It was during the ninth and tenth centuries that glass-making flourished in these regions. Tableware and chemical glassware, perfume flasks and other everyday articles came into widespread use. They rarely exhibit figurative motifs; patterns are simple and were made either by blowing in moulds or by using stamps. There are original glass figures of birds and glass medallions with impressed and relief patterns from the palaces of Afrasiab and Termez, used for interior decoration. The range of motifs is quite varied: vegetal patterns,



FIG. 25. Samarkand. Chessmen made from bone (twelfth century).
(Photo: Courtesy of A. A. Hakimov.)

representations of birds, animals and fish, and also scenes showing a hunt or a rider carrying a bird on his forearm. Arabic characters are occasionally encountered. The style of representation is typical of the pre-Mongol period. According to contemporary accounts, coloured-glass inlay for use in interior decoration was a special form of the glazier's art. However, no examples of such decorative glass have been preserved.

Bone-carving from the eighth to the sixteenth century is represented by large quantities of everyday items: ear picks, small spoons, conical buttons and other small articles. In the eighth and ninth centuries plaques and wafers of bone were still found with engraved images recalling pre-Islamic traditions. One such is a bone plaque depicting an archer: discovered in Transoxania, it follows the iconography of late Sogdian art. Engraved bone artefacts are not found in the eleventh and twelfth centuries, but various articles made of bone continued in everyday use. Of interest in this regard are some chessmen found in Samarkand, small stylized statuettes representing various pieces as horsemen, birds and animals (Fig. 25). From the fourteenth to the sixteenth century, bone was mainly used for sword hilts, knife handles and components of military equipment. Jewellers also used ivory to make small perfumery articles and as incrustations in a variety of caskets and items of women's toiletry.

Surviving examples of artistic woodwork include decorative elements in various types of buildings. Some thematic wood panels carved in relief have been discovered by archaeologists as part of the interior decoration of eighth-century buildings in Usrushana and Sogdia in which pre-Islamic artistic features are quite noticeable. In the ninth and tenth centuries local traditions and stylistic trends in the caliphate as a whole began to interact; this may be seen in

the style of the carving on a column from Oburdon in the eastern part of Transoxania, which shows a remarkable interplay of animal and vegetal motifs, sculptural forms and three-dimensional ornamentation in which the artist displays great originality and imagination.

In the centuries that followed, the style of wood-carving developed along the same lines as in other arts and crafts. Examples of woodwork taken from the interiors of works of architecture dating from the fourteenth to the sixteenth century bear witness to the high artistic standards of medieval wood-carvers. Among these are the carved cenotaph with inscriptions in *thuluth*, *naskh* and Kufic from the fourteenth-century mausoleum of Sayf al-Din al-Bākharzi in Bukhara (Fig. 26) and the carved door from the fifteenth-century mausoleum



FIG. 26. Bukhara. Carved cenotaph from the mausoleum of Sayf al-Dīn al-Bākharzī (fourteenth century). (Photo: Courtesy of A. A. Hakimov.)



FIG. 27. Shahr-i Sabz. Carved door from the mausoleum of Shams al-Dīn Kulyāl (fifteenth century). (Photo: Courtesy of G. A. Pugachenkova.)

of Shams al-Dīn Kulyāl in Shahr-i Sabz, whose inscriptions are set against a background of flowing vegetal ornament (Fig. 27). These monuments illustrate the two main types of decorative carving. In the first, we find the simple decorative technique of grooved or incised pattern, and in the second, the more complex high-relief carving in which the ground is cut away. In terms of style, the wood-carving of Khurasan and Transoxania from the fourteenth to the sixteenth century retained common artistic features.

Paper-making

The appearance of paper in the Islamic lands from the eighth century onwards brought about a revolution in the medieval world: it was first produced in China, then in Samarkand, which became a leading centre for paper-making. This development put an end to Egypt's monopoly of the production of papyrus, and this and parchment were gradually largely superseded by paper. Chinese *kāghid* paper underwent a technical transformation in the Muslim world: instead of mulberry and bamboo, rags provided the basic raw material for the production of the high-quality Transoxanian paper. Although paper-making works appeared in other countries of the Arab world in the tenth century, Samarkand remained the main centre for its production.

Fine fabrics and carpet-making

Decorative textiles were in use in many areas of life: as clothing and also as interior decoration. For the peoples of the Near and Middle East, carpets, runners, curtains and various types of cushions essentially took the place of furniture. Clothes and carpets were indications of their owner's social position, and in the tenth century, to say that someone 'had not one carpet' implied that he was extremely ascetic. From the eighth to the tenth century, almost every town in Khurasan and Transoxania produced some cloth and carpets. Carpets were divided into three types on the basis of the purpose to which they were put: wall carpets; floor carpets and runners; and, lastly, the felt rugs which were placed under the most richly decorated carpets. A wide variety of products were used by different social strata and descriptions of the furnishings and appointments of rulers in the tenth and eleventh centuries make mention of prayer rugs and a variety of cushions and bolsters embroidered with gold and silk thread. The throne was draped with sumptuous carpets, and rulers and servants alike wore bright silks and other fabrics, donning clothes made from 'cloth of Baghdad and Isfahan'.

Some idea of the textiles and the cut of clothes in the eleventh century is provided by mural fragments from the one of the palaces at Lashkar-i Bazar in southern Afghanistan, part of a complex of buildings dating from Ghaznavid and Ghurid times (see Volume IV, Part One, Chapters 5 and 8). Bright red, dark-blue and green fabrics with a variety of embroidered patterns were made into robes with long flaps which were tied at the waist. Courtiers, slave guards and servants were all clad in such garments. In the textile patterns we can recognize the creeping plant designs that are found on much of the pottery and metalware of the eleventh and twelfth centuries.

In the ninth and tenth centuries, the main centres of cotton production were Bukhara, Merv and Nishapur. The traditions of Sogdian textiles were still

maintained in Transoxania and the renowned Sogdian *zandanīchī* fabrics (named after the village of Zandan near Bukhara) were still being produced but were made of cotton fibre instead of silk. The ornamentation of textile patterns also changed, as did their style, the traditional pairs of animals and mythical creatures, griffins or *sīmurgh*s, which abound on the silk *zandanīchī* cloths becoming steadily rarer.

Textile decoration in the tenth to the eleventh century began to be dominated by rosettes, spirals, garlands, buds, floral patterns and motifs depicting a stylized tree of life. This is true of the wall paintings of Lashkar-i Bazar referred to above and of several of the surviving examples of cloth from the period. At the same time, a few rare examples of thematic representations have also been preserved. Such is the tenth-century silk cloth in the Louvre, which bears an inscription pointing to Khurasan as the region in which it was produced. The pattern, set against a red background, depicts pairs of elephants with mythical winged creatures at their feet (Fig. 28).

In the pre-Mongol period, Transoxania and Khurasan were renowned for their cloth, which was not only produced for domestic consumption but was widely exported to the lands further west. Wool, cotton, linen, silk, and even mixed fabrics such as brocade and silver cloth (*sīmgūn*), were produced in Samarkand, Bukhara, Merv and Nishapur. In Bukhara, white, red and green fabrics were made for export as far as Egypt and Byzantium. Special weaving shops in Merv and Bukhara turned out products that included carpets, decorative curtains, patterned fabrics for cushion-covers, small prayer rugs and horse- and saddle-cloths to adorn the horses; these were consigned to the treasury of the caliphate, their value being such that they constituted a form of currency. Silk thread (*abrīsham*), gold-threaded (*mulham*) and royal (*shāhijān*) fabrics were also produced in Merv. From the eleventh century until the beginning of the thirteenth, fabrics were made in Transoxania and Khurasan in imitation of imported samples from China and Egypt, and these fabrics in turn became items for export.

The carpets and carpet products of the nomadic Turkic tribes in the steppes north of Transoxania, such as the Oghuz and the Karluk, were particularly prized in the pre-Mongol period. Under the Karakhanids and the Seljuqs, there was a mingling of the artistic traditions of agricultural peoples and the content and the structuring of the ornamental patterns found in the carpets of the Turkic tribes. Thus the tribal symbolism employed in the carpets of the nomadic tribes and the Irano-Sogdian heraldic compositions with pairs of animals and birds were combined in the carpet products of the pre-Mongol period.

The manufacture of fine fabrics and carpets expanded considerably under Timur and his descendants, when craftsmen and artists from all the conquered lands were brought to the capital Samarkand. Such items included highly coloured covers and gold-embroidered fabrics for horse-cloths, assorted cushions and pillows, robes and high-quality silk and cotton fabrics produced both



FIG. 28. Khurasan. Silk cloth known as the 'Shroud of St Josse' (tenth century). (Photo: © RMN – Hervé Lewandowski.)

in the capital and in other towns of Transoxania and Khurasan from the fourteenth to the sixteenth century. The influence of Chinese iconography was as apparent in the fabric patterns and technology as it was in the ceramics of the period; images of dragons and phoenixes appear along with diffuse cloud motifs. Miniatures from both regions testify to the variety of colours and ornamentation of the fabrics and carpets, whose decorative scheme was dominated by minute floral and geometric patterns.

Mural paintings and sculpture

Wall paintings showing thematic compositions, and also sculpture, were commonly included in the interior decor of both secular and religious buildings in Central Asia during the pre-Islamic period. However, the arrival of Islam brought about changes in the nature of religious buildings and palaces which, together with religious prohibitions, led to changes in the forms and stylistic features of both sculpture and wall painting. This process, which



FIG. 29. Panjikent. Wall painting of a royal reception (eighth century). (Photo: © Hermitage/Terebenin.)

developed variously in different regions of the Islamic world, continued for many decades.

The wall paintings and sculptures discovered in the palaces of the eighth to the ninth century near Samarkand (Panjikent, Afrasiab), Bukhara (Varakhsha) and Nishapur represent the splendid swansong of the representational arts of early medieval Sogdia and Iran. In the Sasanian period, when glorification of the legendary and epic past was encouraged, the interiors of palaces were still being decorated with paintings and sculptured reliefs illustrating hunting scenes, royal receptions (Fig. 29) and epic themes recalling the lives of ancient kings, as witness the paintings from Afrasiab and Varakhsha. The motifs of Sasanian art are encountered in mural compositions and stucco carvings of the eighth and ninth centuries discovered in the remains of Islamic palace buildings of Nishapur. A traditional hunting scene is depicted on a fragment of wall painting but the appearance of different figures and attributes must be viewed as a concession to the new era. Instead of the lion hunts favoured by the Sasanians, the picture shows a horseman with a hawk on his forearm: his prey is a hare (Fig. 30). The grand, monumental quality of Sasanian art gives place to the stylized decorative compositions of the new age.

The ancient tradition of decorating the interiors of bathhouses with paintings was continued in the ninth and tenth centuries: in the view of the medical men and philosophers of the day (al-Rāzi, Ibn Sīnā), these surroundings exerted a beneficial influence on the bathers. According to Ibn Sīnā, a proper bathhouse should contain 'well-executed, beautiful pictures showing, for example, lovers, parks and gardens or horsemen and wild animals'. Ornamental paintings executed in water-resistant colours were discovered on the walls of ruined ninth-century bathhouses in Termez and Nasa. Bathhouses were also built during the Timurid period in Samarkand, Balkh, Shahr-i Sabz and other important towns in the empire. One such bathhouse containing thematic paintings was built in Samarkand by one of Timur's descendants, the ruler and scientist Ulugh Beg (1394–1449) (see on him, Volume IV, Part One, Chapter 17).

Under the Ghaznavids, palaces too were decorated with sculptures and wall paintings, as attested by the already-mentioned monumental paintings and reliefs discovered at Lashkar-i Bazar. Full-length figures of warriors and guardsmen clad in multi-coloured robes and wielding clubs are depicted on the walls of what was clearly a vast throne room. Their poses are static and their Mongoloid features recall those of figures in painted scenes on the glazed Iranian ceramics of the eleventh and twelfth centuries. The treatment is three-dimensional without the full modelling of figures and garments. No detailed events or actions are described in the paintings. However, this is not the only example at the time of an official ceremonial style of painting. According to the eleventh-century historian Abu' l-Fadl Bayhaqī, Amir Mas^cūd, the son of Mahmūd of Ghazna (see Volume IV, Part One, Chapter 5), spent some time in Herat in his youth and had a palace built there containing a room for rest and



FIG. 30. Nishapur. Wall painting with a horseman (tenth century).
(Photo: Courtesy of Iran National Museum.)

relaxation. He had this room decorated from floor to ceiling with images of naked men and women in scenes from a well-known erotic book of the time, the *Alfiyya shalfiyya*, which resembled the Indian Kama Sutra. On hearing of this, his father sent a courier to see whether this was true, but Masᶜūd managed to have the paintings effaced in time.

The relief compositions at Lashkar-i Bazar represent a step towards a more ornamental style, although figurative compositions were still produced. The sources of the traditions developed in the Iranian twelfth- and thirteenth-century stucco carvings found in Rayy, Sava and elsewhere may be detected in the style of the paintings and reliefs at Lashkar-i Bazar. The craftsmen's talents

were displayed not only in architectural decoration but also in the scenes executed in the relief and in the figurative representations of birds and animals on ceramic and bronze vessels, vases, jars and incense-burners.

No thematic painting from the eleventh century has been found in Transoxania. Sculptural representations were clearly no longer used for interior decoration. However, fine examples of carved stucco work from the eleventh–twelfth century palace of the local rulers of Termez depicting mythical creatures – lions with human heads – in full relief testify to local artists' hankering after the figurative subjects of earlier centuries. In general, the carved stucco work of the period offers a decorative, three-dimensional treatment of vegetal and geometric designs (Fig. 31).



FIG. 31. Termez. Carved stucco in the mausoleum of Hākim al-Tirmidhi. (Photo: Courtesy of G. A. Pugachenkova.)

Magnificent palaces and vast religious edifices were erected between the fourteenth and the sixteenth century, ushering in a new stage in the development of thematic mural painting. The Timurid capital Samarkand, to which the best craftsmen, artists and architects were brought, became the centre of this art form. One of the commonest forms of wall painting in Samarkand was thematic landscape, executed by outlining the design in ochre and applying gold leaf. Examples of this type of painting, influenced by Chinese traditions, may be found inside the mausoleum of Shīrīn Biki Aqa (fourteenth century) in the Shah-i Zinda complex in Samarkand. The murals in other, later mausoleums in Samarkand, those of Bibi Khānum and Tūmān Aqa (fifteenth century), also have traces of landscape painting, executed in dark blue over white *ganch* (plaster) combined with gold leaf. A variety of trees and plants, depicted in three-dimensional graphic style, express in metaphorical terms ideas about paradise and heavenly blessings which were current at the time. Trees are frequently presented in separate cartouches or rosettes which themselves form part of the geometric ornament (Fig. 32). Hence the term 'ornamental painting' is more appropriate for fifteenth- and sixteenth-century monuments with elements of landscape painting such as the decoration with plant motifs inside the Gunbad-i Sayyidan in Shahr-i Sabz (see below, Chapter 18).

The influence of Chinese iconography is perceptible in the dragons depicted on the portal of the mosque at Anau (fifteenth century, near Ashgabat) in northern Khurasan and the graceful flying birds on the portal of the Diwān-Begi *madrasa* in Bukhara (sixteenth century), but the general style of heraldic compositions with paired images reflects the trend towards refined ornamental art typical of the Timurid period. This tradition of zoomorphic imagery on the portals of mosques and *madrasa*s was to be developed in the later architecture of the period.

Some schematic, rather primitively drawn images of various birds and animals, reminiscent in stylistic terms of the illustrations of scientific and pharmacological treatises, have been identified in the painting from slightly after our period at the mosque of Khoja Zayn al-Dīn (sixteenth century) and the *madrasa* of Mīr-i ᶜArab (sixteenth century) in Bukhara. However, the traditions of sculptural, three-dimensional art do not seem to have been reflected in the architectural monuments of the Timurid age.



FIG. 32. Samarkand. Cartouche from the mausoleum of Tūmān Aqa.
(Photo: © Reproduced from:
F. Beaupertuis-Bressand, *The Blue Gold of Samarkand.*)

Part Two

Turkic and Mongol art

(E. Novgorodova)

The Inner Asian regions had a rich artistic heritage in both prehistoric times and those of early recorded history; for these, see Volume II, especially Chapter 15, and Volume III, Chapter 14.

Uighur art and sculpture

In the middle of the eighth century, the Uighur Kaghanate united ten Uighur and nine Oghuz tribes, so that the authority of the new Kaghan extended from the Altai mountains to Manchuria and southwards to the Gobi desert. The Uighurs brought under their control the towns and oases of western Kashghar and, in 840, transferred their capital from the banks of the Orkhon to the northern slopes of the eastern T'ien Shan, naming their new capital Beshbalïk (near the modern town of Guchen), while Turfan became a second capital, known as Kocho (for a more detailed treatment, see Volume IV, Part One, Chapter 9). Gradually, the Uighurs forsook Manichaeism for Buddhism and increasingly adopted a settled way of life, merging with the local Indo-Europeans. A new, Turkicized culture emerged, with Uighur as the main administrative language. Archaeologists have excavated the remains of the fortress and palace in Tuva, located on the island in the middle of Lake Tere-göl. It is assumed that the palace was built on the orders of the Khan Mo-yen-ch'o (746–59). The palace was located at the centre of the fortress (the foundations measure 23 m × 23 m). It was faced with baked brick and had broad staircases and ramps; the roof was supported by 36 mighty columns. The murals were lavish: the walls of the palace were stuccoed and decorated with frescoes. Household utensils, ornaments and painted vases have also been found, testifying to the great skill of the craftsmen from various nations and representing different religions. Sogdians and captive Chinese worked alongside Uighurs in the construction of this palace.

Relations with China played a major part in the development of Uighur culture. When internecine strife rent the Heavenly Kingdom, the assistance of the Uighur Kaghan became ever more necessary. The Chinese not only acquitted their debts with lavish gifts: they also gave their princesses in marriage to Uighur princes. Thus the customs and luxuries of the Chinese court began to be adopted by the Uighur nobility and to become part of the culture of the élite. But although the ruling classes came under Chinese cultural influence, the rest of the Kaghanate's population continued to live by its age-old laws.

Towns and fortresses were rectangular, enclosed by walls of *pisé*, or unbaked brick; round towers were positioned at gates and corners and fortresses

were surrounded by deep fosses. The posts and tiled roofs of the buildings are also features of the Türk monuments of Mongolia, such as one built in honour of Kül Tegin from Höshöö Tsaidam. The discovery of fragments of T'ang pottery points to Chinese influence, which could also explain the statues of lions discovered among the ruins of the town of Bay-Balïk, on the banks of the Selenga in the Transbaikal region. Such Uighur fortified towns and fortresses were also centres of settlement, where crafts and trade flourished, and they served to establish settled ways of life among the Türks in Central Asia.

The sculpture of the Uighur period has been studied far less than the stone statues of the ancient Türks. It is also difficult at times to establish dates for its production. We know, for example, that the Uighurs of the Selenga erected stone statues of men wearing headgear and carrying a vessel in both hands, and such statues have been found both at Tuva and at Khakasiya, and like those of the Türk Kaghanate, always face eastwards. The vessels and headgear suggest a date somewhere between the eighth and the eleventh century. The identification of certain sculptures as male is open to question.[1] Some of the statues identified as male have accentuated breasts and wear women's headgear and also, at times, a pendant, typically a woman's ornament.

There is a large group of stelae, consisting of a small number in Mongolia, a rather larger number in Kyrgyzstan and a very large number in Kazakhstan, which can unquestionably be identified as sculptures of the Uighur period (though not of their ethnic ancestors); similar sculptures can be found throughout the southern Russian steppes.

Sculptures of the Türks of Kazakhstan and Mongolia

The sculptures on the high plateaux of Kazakhstan are distinguished, in particular, by the fact that they depict women. Clearly, this is an example of the cult of the primogenitrix known among the Turkic peoples as *Umai*. The breasts are emphasized and there is no depiction of a moustache or weapon. The vessel is usually shown held in both hands, as on the Uighur sculptures. The tall hat resembles the national headgear worn by Kazakh women, and the solid pendant-like ornament around the neck is another indication of female gender. A small group of male portraits depict figures with moustaches, occasionally sitting cross-legged in the Turkish fashion. The sculptures of that period are not treated three-dimensionally; yet in spite of the simplicity of the portrayal, the faces are highly individual and expressive. No clothing is shown, not even the flaps of the kaftans that we are accustomed to see on earlier Turkic sculptures. Similarities in the way the vessel is held, in its form, and in the ornaments and headgear

1. Mogil'nikov, 1981.

worn enable us to date the types of sculpture described to the ninth–tenth century and to make a connection between them and the stone statues from south-eastern Europe, the Polovtsian *baba*s, which date from the twelfth century and are associated with the progress of the Kïpchak from Central Asia to the steppes of southern and eastern Europe.

Transformed in time and space, the rites and cults of the ancient Türks underwent great changes, but the central idea remained the same, as expressed in rites, in the principle of sacrifice and in the erection of idols in honour of ancestors. Sculptures of this sort are also found in Mongolia. For example, stone images of people wearing neither belt nor weapon and sometimes wearing tall headgear are found on the monument to Unget. The rite of ancestor remembrance, described by William of Rubruck on the basis of his observation of the Polovtsians, explains the purpose of the Kïpchak/Cuman sacrificial altar:

> The Cumans raise a large mound over the deceased and erect a statue to him facing east and holding a bowl in its hands in front of the navel . . . I recently saw a dead man around whom 16 horse hides were hung on tall poles, four at each corner of the world, and they were placed before him for drinking *kumiss* [fermented mare's milk] and eating meat, although it was said that he had been christened. I saw other burials facing east, very large areas, paved with stones, some round, others rectangular, and with four long stones raised at the four corners of the world.[2]

Elements in William of Rubruck's description may be compared with the ancient Türk monument in the locality of Askhate in Mongolia. An inscription on the eastern part of the funeral complex has been carved above the portrayal in relief of two youths in identical clothing, sitting on either side of their dead father who is shown wearing tall headgear. A clan *tamghā* (emblem) is carved above the head of the figure on the right, enabling the monument to be dated to the eighth century. A bird, the symbol of the departed soul of the deceased, is depicted between the *tamghā* and the inscription. On the stone images of Semirechye and other areas in the Türk Kaghanate, a bird is frequently carved on the arm of the sculpture (not a bird of prey or a hunting bird). The same representations are also found on the petroglyphs of Central Asia.

Scenes from the life and mythology of the inhabitants of Central Asia carved on rock faces must also be included in the art of the period. The most typical images are outlines of armed horsemen, *tamghā*-like signs of ownership, and animals. Already widely known, these petroglyphs are located in western Mongolia, on Mount Khar-khad ('Black Cliff') on the eastern spurs of the Mongolian Altai, along the right bank of the River Kobdo. A cliff with carvings can be found not far from the summit of Tsast-ul (alt. 4,213 m), the

2. William of Rubruck, 1911, p. 146; 1990, p. 221.

only mountain with large areas of smooth rock surface. The drawing has been carved out at a height of more than 10 m from the base of the rock and can be clearly seen from a distance.

Showing five horsemen in armour and helmets, this petroglyph is unique. The horsemen are armed with spears and their horses, too, are protected by armour. In the uppermost part of the composition, there is a horse, a deer and, in front of them, two heavily armed horsemen riding away to the right, one after another. Lower down, riding towards them, is an identical rider carrying a spear, and lower still a foot soldier is shown holding a composite bow. Another two horsemen in armour are carved in the lower part of the drawing, riding to the right in close formation. The central figures are shown in outline. The horsemen are depicted standing straight up in their stirrups. All of them have high narrow waists and broad shoulders and all are shown full-face. The horsemen are rendered accurately and in great detail. The coats of mail are shown as long kaftans; their structure is rendered by horizontal lines like that of laminar armour. Saddles are shown with a high rear pommel, which was common in Central Asia from the sixth to the eighth century (for example, in Kudirge, Kokel and elsewhere). These drawings of heavily armoured horsemen must have been executed by individuals belonging to the Turkic peoples rather than by their neighbours. So far as has been discovered, this is the only monument of its type.

Mongol art: architecture and painting

The Mongols, like the other peoples of Central Asia, used large tents and yurts. According to thirteenth-century reports, there was a gigantic yurt in Mongolia, built on a cart, to which 22 bulls were harnessed. Traces of many towns and settlements have also survived, however, the most striking example being the old Mongol capital of Karakorum. This was a large city boasting 12 temples of different religions (including Buddhism), the palace of Ögedey Khan and residential quarters around the central trading area; we have a description of it from the only known European traveller who visited it, William of Rubruck.[3]

A striking example of the frescoes in ancient Mongol cities is provided by the paintings discovered during excavations beneath the palace of Ögedey. Built in 1235, the palace stood on a high mound composed of alternating layers of sand and clay beneath which were found the remains of a Buddhist temple with fragments of twelfth- and early thirteenth-century frescoes. They were painted on a layer of white plaster applied to a coat of yellow clay covering the

3. William of Rubruck, 1911; 1990.

wall. The paintings are on religious subjects. The larger figures of the Buddha are shown surrounded by small figures and three types of representation have been identified: Tibetan, Uighur and Chinese. Among the Tibetan-style pictures is a Buddha depicted with a topknot and a halo against a red background. His right shoulder is bare, his left is covered by a red cloak. Such representations of the Buddha teaching are known from Karakhoto. Images of him wearing a tall headdress, clothed in red and 'bestowing a blessing', corresponding to Tibetan canons, also form part of the same cycle of paintings. A fragment depicting a figure with hands clasped and wearing a red garment with broad sleeves also belongs to the Tibetan tradition. The craft products found include jewellery made of ivory, copper earrings, a filigree silver bracelet, bronze plates and finely worked clasps, and many other items. Chinese influence and, at times, workmanship are evident in the splendid vases, the ceramic dishes and the enormous number of shards of various forms of pottery which have been found.

The sculpture of the Mongol empire differed substantially from all the known sculpture of earlier periods, and this is particularly true of the stone sculptures found in eastern Mongolia. One striking example is the sculpture in the *somon* (district) of Dariganga in Sühbaatar *aymak* (province), which differs from the Turkic sculptures of western Mongolia in the pose depicted, the workmanship, and the clothing, headgear and ornamentation. For many years, this work was erroneously dated by scholars to the ancient Türk period (i.e. not later than the eighth century), but L. L. Victorova, who first dated the stone sculptures of eastern Mongolia to the thirteenth and fourteenth centuries, has demonstrated that this monumental work depicts members of the Chinggisid dynasty. One of the statues represents the youngest son of Chinggis Khan, Tolui. The statues' hats have small brims and long ribbons hanging down the wearers' backs. Kaftans with long flaps and narrow sleeves are worn, fastening from left to right. Such belts as are visible are decorated with small plates in the form of eight-petalled rosettes or half-moon shapes. Unlike the ancient Türk sculptures, on which the legs are not shown, the sculptures from eastern Mongolia are presented in soft boots with thick soles and turned-up toes. Many figures carry purses or prayer beads. One sculpture shows an armchair with elbow-rests, something which was never produced in the west of the country.[4]

Architectural ornament also has its place in the sculpture of the Mongol period, examples being the heads or foreparts of dragons, stretching forward like animals about to leap. Figurines of women and, occasionally, of animals have been found in temples. Another distinctive decorative feature consisted of stone stelae bearing inscriptions and mounted on stone bases in the form of tortoises; one of these last still stands by the wall of Erdeni-zu.

4. Viktorova, 1985.

Chinese Turkistan and China

The town of Karakhoto, situated on the lower reaches of the Edzen-göl in Gansu province in the north-western corner of China, was rediscovered by P. K. Kozlov in 1908. The first recorded reference to the town dates back to the twelfth century, at a time when the Tangut people, who had come together in the year 982 in the Hsi-hsia state, were living on the Edzen-göl (see Volume IV, Part One, Chapter 9). In the year 1226 they were subjugated by the Mongol forces under Chinggis Khan. The excavations at Karakhoto have filled in gaps in the history of Central Asia, its culture, language, literature and art. Among Kozlov's discoveries there were woodblocks and engravings. Whereas ninth- and tenth-century engravings were found at Dunhuang (in the Lop desert, where cave walls were decorated with Buddhist frescoes, statues and altars), those at Karakhoto date from the eleventh to the thirteenth century. The murals were religious in content and demonstrated the influence of neighbouring countries on the art of the period in Central Asia. Two sets of influences may be identified on the basis of the composition, Tibetan and Chinese. The Chinese influence on Gansu lasted from the second century B.C. to the tenth century A.D., whereas the eleventh to the fourteenth century was a period of Tibetan cultural influence.

The religious images found at Karakhoto that were executed according to Chinese traditions included representations of the Amitabha Buddha, the cult of the dead and planetary deities, including representations of natural phenomena and the seasons. Characteristic features of images exhibiting a Chinese influence are clothes draped over the entire body, the colour yellow and a Taoist motif. Finds there dating from the eleventh to the fourteenth century include images in the Tibetan style such as the 'Buddha of the diamond throne'. Owing to the conservatism of Tibet, the technique and images of medieval icon-painting were preserved almost to the present day.

Tibet

Painting in Tibet was mainly confined to the country's temples, and it was here that artists received their education. In addition to the common deities, quite a few local gods have been identified which are associated with new themes, landscapes and dress. The lower the position of the deity in the hierarchical order, the greater the freedom allowed the artist. Local deities included the gods of health, the earth and the protectors of the mountains. Tibet was also known for its many demons (more numerous than the human population!), and Lamaism set itself the task of subjugating these demons and obliging them to serve its own purposes. The representation of these demons was taken very

seriously, and they are one of the most striking subjects in the monastery and temple paintings.

High in the mountains, in the dwelling-place of the gods, collections of statuettes made of painted clay by lay craftsmen have been found. They represent the successive visions surrounding the deceased who crosses the River Bardo to the world of the spirits. As in all its manifestations, Tibetan Lamaism differed from mainstream Buddhism; thus the architecture is specifically Tibetan in style. The monumental, heavy buildings rise up on the mountain sides, temples being positioned so that the sun's rays first strike their gold-burnished roofs. Tibetan monasteries on the mountain tops are open to all the winds, defying enemies by their inaccessibility.

Other distinguishing features of Tibetan culture are the preservation and organic interweaving of shamanist traditions, the sacrifice of live animals and the construction of sacrificial altars (*obos*), made of piles of stones on mountain tops, where sacrifices were made to the ancestors and the lords of the mountains. One of the ancient images associated with the ancestor cult is a grey-haired old man, a character frequently depicted in Lamaist painting and sculpture.

Part Three

Hindu and Buddhist arts and crafts: tiles, ceramics and pottery

(A. H. Dani)

In this early medieval period of northern India, there is evidence of continuity in the popular art of the local people and of a marked change introduced by migrating peoples from Central Asia further north, such as the Türks, Gujars and other tribes who integrated themselves into the Rajput ruling system. As Buddhism was now mostly confined to Afghanistan and north-western India, Buddhist material may be recognized in the late phase of Buddhist survival here, e.g. at Bhamala[5] and Giri[6] in Taxila and from late terracotta and stucco figures from Taxila and Bamiyan. These figures present new ethnic elements which spread down through the Indus region and penetrated into Rajasthan and the western part of the Gangetic plain and created the Rajput style of art.

At Bhamala, the stupa court was paved, probably at this late phase of the monastic survival, by terracotta tiles with a coating of lime plaster. These tiles

5. Marshall, 1951, Vol. 1, pp. 391–7.
6. Ibid., pp. 342–7.

were laid flat and divided into squares with lines of tiles-on-edge between them. Here the arrangement of tiles assumes the form of the 'Wheel of Law', the spokes and rims of which are formed of tile-on-edge. At another place in front of a cell, the tiles bear a variety of patterns incised on their faces, e.g. crosses, spirals, double-axes, swastikas, lotus rosettes, concentric circles, quatrefoils of pipal leaves, etc.[7]

In the Indus region, the Türks (the Turushkas of Sanskrit literature) created the Hindūshāhī style of terracotta and ceramic art, one that was significant for terracotta human and animal figurines. One example was found in the upper layers of the Damkot excavation.[8] A handmade male figure shown in a kneeling position with hands tied in front, it has pinched facial features with a high arched nose and punctured eyes, and a mouth depicted by a slit, and it wears roundels at the ears and a turban on the head. It is thickly coated with red slip and painted black on the eyebrows, arms, waist and feet.

In contrast to the above, we find a distinctive variety of terracotta figurines from Bajaur which show typical Turkic facial types and wear long, flowing garments for both men and women. Two examples from the Islamabad Museum are female figurines holding babies in their arms. One of them (Fig. 33) is seated on a pitcher stool with her legs prominently shown in front. Her fat body bulges out on the seat, while she has a V-shaped bejewelled neck ornament. She also has broad muscular cheeks with her nose pinched and a slit mouth, and her eyes are applied and incised. The back of her head is pressed. The other figurine (Fig. 34) is in a standing pose and wears a long, flowing robe to her feet. Her nose is also pinched, but the eyes are just incised. She has an ornamented cap on her head. Both the figures present a new ethnic type. A third terracotta object shows an elephant (Fig. 35) with its trunk partly broken. On the body of the elephant several lamps have been placed, suggesting that such lamp-loaded elephants were probably used for ritual purposes.

Ceramic and pottery types are found in upper layers of historical sites throughout this region, and have been described by the excavators from sites such as Ahichchhatra, Charsada, Tulamba and Damkot. At Mundigak in southern Afghanistan there is an abrupt change, and we find here plain bowls and jars in red and reddish brown.[9] A difference in decoration is seen in the late pottery from the ruins of Ahichchhatra in Bareily district, Uttar Pradesh, from strata II and I, dated respectively to 750–850 and 850–1100. The most common type is a variety of 'decorative bowls' which are made in mould and bear designs in relief on the slipped red ground. The decorations are geometric patterns of oblique or cross-hatchings or concentric semi-circles, lotus petals, various shapes

7. Marshall, 1951, Vol. 1, p. 394; Vol. 3, Pl. 119a–b.
8. Rahman, 1968–69, Pl. 88, no. 173.
9. Casal, 1961, Figs. 124–5 and Pl. XXXVI, and pp. 163, 223–4.



FIG. 33. Bajaur. Seated lady with babies in her arms. (Photo: Courtesy of A. H. Dani.)



FIG. 34. Bajaur. Figurine in a standing pose wearing a long, flowing robe to her feet. (Photo: Courtesy of A. H. Dani.)



FIG. 35. Bajaur. Terracotta elephant. (Photo: Courtesy of A. H. Dani.)

of rosettes, together with or alternating with conch-shells, scrolls and arabesques. Other types include miniature jars, a double-spouted jar and cooking vessels, sometimes with long handles. Pedestalled bowls, probably used as incense-burners, have also been recovered. These also bear decorations consisting of incised rectilinear or curvilinear geometric patterns, spirals, zigzags and nick. Conch-shells in relief are also seen.[10]

Sir Mortimer Wheeler has given a detailed classification of the late pottery found in his excavation at Charsada (the Bala Hisar mound) and he places them 'as early as the eighth century A.D.'.[11] Such potsherds have often been discovered in association with the glazed ware that was introduced by the Muslim incomers to the north-western Indian plains. The chief characteristic of the Hindu-style pottery shows a buff jar with friezes of stamped notches and rosettes; a brown jar with horizontal linear and looped patterns in white paint, and a buff rim with stamped parallel bars; a reddish buff bowl with friezes of stamped circles, rosettes and lines, and with a ram's head spout; reddish-brown ware with stamped rosettes, lozenges and triangles, slashed handles and slashed ears or frills; and a reddish buff jar with oblique slashes round the shoulder. All this pottery is of a buff or reddish buff colour. Among the varieties, one may easily recognize a flat bowl with out-turned lip; a carinated water jar with round base and narrow mouth; a trough-like bowl with tapering sides; a flat-based cooking tray; round-bottomed cooking pots; and many other kinds of bowls and water jars, handled cups and drinking bowls. These varieties clearly reflect the social life of the people who were using them. The most important items missing are tall glasses meant for drinking and flat *thali*s, generally used for eating food. In their place we have wide open bowls with tapering sides meant for drinking; wide open bowls with curved sides for eating; and cooking pots and water vessels for bringing water from a distance.

At Tulamba in Khanewal district of the Multan Division in modern Pakistan, a complete sequence of historical remains has been found for the periods III, IV and V, spanning the eighth to the sixteenth century. The most outstanding feature of these periods was the emergence of 'Tulamba stamped ware', with a bewildering variety of over 200 designs, some showing parallels with those from stratum I of Ahichchhatra. The pottery of period III is of varied types, consisting of both thick and thin vessels. The painted pottery, which occurred profusely in period III, has designs painted either directly on the body of the vessels or over red slip in black colour. The designs consist of groups of parallel lines, triangles, loops, cross-hatching and zigzag lines. The pottery stamped with designs on the shoulder of the vessel is different from the pottery with impressed designs. The latter designs consist of volutes, squares, diamonds,

10. Ghosh and Panigraphi, 1945, pp. 50–5.
11. Wheeler, 1962, p. 80, Figs. 36–9.

wheels, circles, eyes, ducks, human faces and elliptical and wavy forms. These are usually decorated with rays around the outer edge or small dots within or outside a motif. On many specimens, the designs overlap and thus are only partially visible because of irregular stamping. The ware is generally made of well-levigated clay and is extremely hard. Among the varieties of pots we have a large pan, a bowl with tapering sides or with incurved sides, a small cup, a water pitcher, cooking vessels, a flat-based dish, varieties of oil lamps and many kinds of storage jars for food and water. Again there is an absence of flat *thalis* and drinking glasses. The predominance of bowls, both for drinking and eating purposes, shows the usage of the time. The cooking vessels and the water pitchers follow the traditional types.[12]

Similar pottery has also been found from period IV of Sarai Khola in Taxila.[13] The pottery assemblage is mainly represented by an overwhelming majority of pieces in the red ware tradition. It is mostly undecorated and plain, but some of it is painted in black. However, we also find incised decoration showing triangular designs and many lines. Among the varieties of forms we have water pitchers, bowls, storage vessels, lids, incense-burners and handled jars. These varieties show a close resemblance to the late pottery from Charsada and Damkot in Dir district. Here again, bowls of different types predominate.

The fortified site of Damkot near Chakdara has yielded, in its stratum V, material of the Hindūshāhī period. The hallmark of this ceramic industry also shows stamped designs, consisting of rosettes, concentric circles and impressed parallel bars and dots. Among the varieties of pots we find storage vessels; a water pitcher; bowls of various kinds; a cooking vessel and a kneeding trough with flat base and straight and curved sides; handled pots; and others. We also get pedestalled bowls showing excellent surface treatment and painted designs on the inside. The handled pots, in which the handles are very often roughly striated, are found in large numbers. Similarly spouted vessels with plain or decorated spouts are found very frequently. The painted decoration of motifs includes horizontal bands, loops, hatched or solid triangles, vertical strokes and other floral patterns, usually executed in black, though sometimes also in white. The most distinctive motif is the group of triple leaves suspended from a stem.[14]

On the whole, we find new types only in terracotta specimens that speak not only of new human elements but also of a new style in dress and coiffure. But the ceramic and the pottery types are decorated in a simple fashion, mainly by stamping and incision. The characteristic types show varieties of bowls, cooking vessels and water pitchers. Pedestalled bowls and cups and lamps with pinched mouths were used for ritual purposes.

12. For varieties of designs, see Mughal, 1967, Figs. 30, 32 and Pls. XV–XXIII.
13. Halim, 1972, pp. 100–12.
14. Rahman, 1968–9, pp. 245–50; Mogil'nikov, 1981.

17

Arts of the book and painting

M. M. Ashrafi and P. Soucek

Part One

Arts of the book and miniatures

(M. M. Ashrafi)

The art of the manuscript book in Central Asia has a history stretching back over many centuries and a vast heritage, only part of which has survived to the present day. Its lengthy development involved the refinement of the arts of calligraphy, illumination and miniature painting.

General features

The creation of an artistically presented manuscript was a long and laborious process, which demanded great skill on the part of all those involved: the calligrapher, the decorative artist, the miniaturist and the binder. Such a costly art form could only flourish in major cultural centres and under high patronage. As a rule, it was in the *kitāb-khāna*, the court workshop, of the ruler's library that a large force of craftsmen of the highest quality in all branches of book-making was assembled. Baghdad and Tabriz, Shiraz and Herat, Samarkand and Bukhara were renowned centres of the book-maker's art at this period.

The development of the art of the book was a single process involving the creative exchange of accomplishments between different cultural centres and also the continuous refinement of earlier traditions. All constituents of the artistically composed book – calligraphy, miniatures, decoration of the margins and chapter headings – had to form a harmonious whole within the confines of the manuscript. In the course of a long period of evolution, special canons were established, precise rules for the exact proportions of text and margins and of text and miniature on the manuscript page. The craftsmen



FIG. 1. *Sar-lawh* (frontispiece) of al-Ghazālī's *Kīmiyā-i Saʿādat* (Persan 14, fol. 1). (Photo: © Bibliothèque Nationale de France.)

endeavoured to achieve a harmony of line, colour and rhythm between calligraphy and painting, and to match the planar principle governing the organization of space in the miniature with the planar ornamentation of the decorative element.

The illumination of a manuscript comprised the embellishment of the first and last folios and also the artistic layout of the text and the borders.[1] At the centre of the first folio was a medallion in which the name of the manuscript's owner or the ruler was inscribed: an artistically decorated ex-libris. These medallions were round or oval, or else rosettes, taking the form of 8- or 12-pointed stars, and were surmounted by elongated cartouches.[2] The following folio was ornamented with a *sar-lawh* (frontispiece), decorating the entire page, or else an *ʿunwān*, a scalloped, rectangular headpiece placed in the upper part of the page, in which the title of the work was inscribed together with the traditional Muslim introductory formula, the *bismillāh*. The *sar-lawh,* which occupied 1 or even 2 pages when the following page was also decorated (Fig. 1), was either an ornamental composition or else it depicted the scene of a royal audience or hunt. In early miniatures (thirteenth–early fourteenth century), each side of a double-page frontispiece illustrating a particular theme was

1. Akimushkin and Ivanov, 1979, pp. 35–7.
2. Ibid., pp. 35–6.

enclosed in a frame; at a later date, double frontispieces began to be brought together in a unified composition.[3] The function of the *sar-lawh* was to embellish the beginning of the text or the title of the work, or else simply to provide a colourful ornamental decoration for the opening pages of the book.[4] Frontispieces performed a semantic and symbolic function as 'the entry into the world of the book',[5] providing a point of departure for the literary and artistic narration.[6]

The pages inside the book were embellished with: (a) frames consisting of fine parallel gold and coloured (red/blue) lines, enclosing and highlighting the text; (b) ornamented headpieces in which the chapter titles were inserted; and (c) decoration of the manuscript's margins. The decorative artist had to take account of the layout of the text, the outline of the letters, the style of the calligraphy and the general artistic composition of the page (see Part Two below). The margins were decorated with coarse or fine gold spray; vegetal or geometric patterns; outline drawings of animals and birds; and appliqué work or incrustation. The ground of the margins was usually tinted in a variety of colours: light or dark blue, yellow, red, black, orange, etc. Such decorated margins are typical of Herat manuscripts of the second half of the fifteenth century: they surround the text and the miniatures like a luxurious picture frame. As the art of book design developed, the decorated headpiece began to appear on the page preceding the illustration, intensifying still further the decorative impression and preparing the viewer for the contemplation of beauty.

Great significance was attached to the artistic presentation of the colophon, where the name of the calligrapher and the individual commissioning the manuscript were usually inserted together with the date and place of production. The horizontal lines of the text were either tapered or reduced in length by steps. Occasionally, the colophon assumed the form of a rectangle which was narrower than the main text and was enclosed on the sides by broad ornamental frames. The earliest kind of colophon, encountered from the beginning of the fourteenth century, was trapezoidal; colophons in the shape of triangular medallions appeared later, in the 1380s (Fig. 2).[7]

Bookbinding was a complex and highly esteemed art.[8] Covers were made from the hides of various animals (sheep, goats, horses, deer) which provided soft, smooth material of a suitable colour for artistic treatment. Patterns were applied by a special technique of cold embossing which produced a high relief. The decoration of covers in the fourteenth century was concise and restrained,

3. Akimushkin and Ivanov, 1979, p. 36.
4. Ibid., p. 38.
5. Shkurov, 1989, p. 178.
6. Shkurov, 1983, p. 97.
7. Akimushkin and Ivanov, 1979, p. 50.
8. Aslanapa, 1979, pp. 59–91.

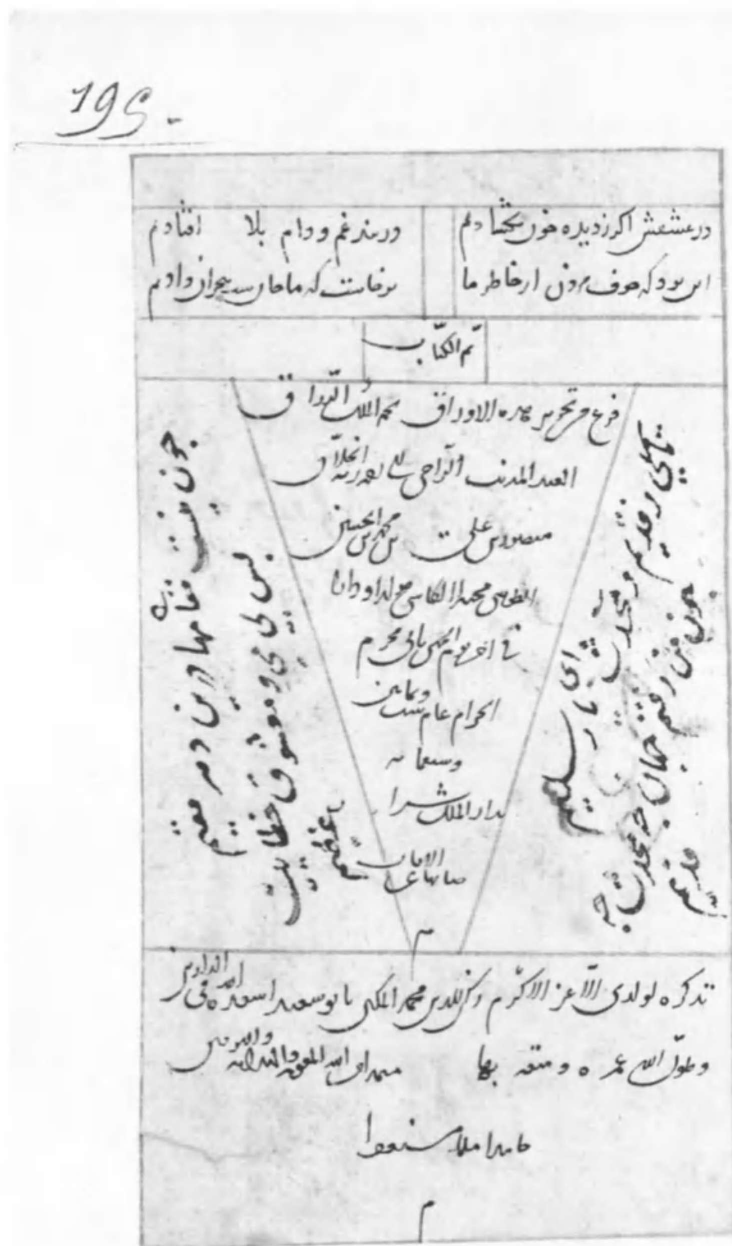


FIG. 2. Colophon from the manuscript of the *Dīwān-i ʿImād*, copied by Mansūr b. ʿAlī Kāshī (1384) (Suppl. Persan 745, fol. 195). (Photo: © Bibliothèque Nationale de France.)

characterized by a strict simplicity of ornamentation and the absence of gold leaf. The surface of the cover was usually decorated by a set of three medallions arranged vertically, the central medallion being large, scalloped and round or oval in shape, whereas the others, above and below it, were smaller in size. The rectangular surface of the cover was framed at the edges by a border of thin straight lines, the area between which was covered with plant motifs or intertwined decoration. Triangles were placed at the corners of the cover, with the hypotenuse towards the centre. The medallions and triangles at the corners were decorated with fine floral and plant designs.

As the art of binding developed, dark blue, red or even gold grounds began to appear in the medallions, overlaid with openwork tracery. Scenery started to be depicted on Herat bindings of the fifteenth century, which also featured Chinese elements in the shape of symbolic figures: animals and birds – dragons, phoenixes and ducks. Human figures only began to appear in the second quarter of the fifteenth century.[9] The bindings from different artistic centres exhibited variations in the patterns and images occupying the medallions and the overall surface of the composition. Sometimes there was no central medallion. The development of the craft of binding was marked by Timurid Herat's strong influence on other centres.

All of the decorative elements involved in the presentation of the manuscript had to be combined and harmonized. The art of the book is a living, evolving art form in which all changes have arisen from within. The most significant transformation – the one which was to prove of greatest consequence for the development of the art – was the changing position of the picture or miniature in relation to that of the text within the confines of a single page.[10] This process developed in the course of the fourteenth century, with the picture tending to spread over an ever-greater area of the manuscript page. Whereas the miniature had played a secondary role in early illuminated manuscripts, the area that it occupied gradually expanded until it came to dominate the actual text.[11]

The importance of the miniature

This change was due, in large part, to the way in which the miniature evolved, to the progress it achieved and to its characteristic features. The latter emerged most clearly in a specific system of representation governed by line, colour, rhythm and convention, revealing the full potential of each of these means of expression as both representational and aesthetically significant elements.

9. Aslanapa, 1979, p. 60; Bosch, Carswell and Petherbridge, 1981; Pedersen, 1984, pp. 101–12.
10. Shkurov, 1989, pp. 162–5.
11. Ibid., p. 165.

Line was one of the chief means of expression, helping to create the image, to suggest movement and to construct spatial relations. Medieval Islamic art does not convey the illusion of real space, foreshortening, volume or chiaroscuro; the flat surface predominates. Consequently, the line gained in importance as a way of indicating structure. As a means of expression, it rises to a pitch of emotional intensity through its harmony, fluency or tense resilience. There were no limits to its possibilities, which ranged broadly from the lightest of touches and barely perceptible subtleties to emphatically thick outlines as required.[12]

Colour was a particularly important element in the artistic language of the miniature. It played a part in the structure of the composition as well as conveying meaning by emphasizing and highlighting what was most essential in the development of the subject, and its luminosity enhanced the value of the miniature. The sparkle of bright, resonant, pure, local colours generated a festive sensation, the highly poetic atmosphere of a fabulously beautiful world. Particular value was attached to the harmony and play of colours, the subtle combinations and contrasts, the alternation of cool and warm tones.

Rhythm also played an extremely important part in the creation of the image and the overall emotional mood of the work. In the miniature, rhythm was based on a repetition of the following elements: line; colour outlines; light patches; planes of different shapes and sizes; and repetition through specific intervals of blank space, i.e. unoccupied areas in the field of the miniature. Each of these rhythmic features was perceived in the course of the miniature's evolution as a device, a means of artistic expression, and its further development was consciously related to the subject-matter. The rhythmic tempo depended on the frequency with which these features succeeded one another within the area of the miniature. Thus flashes of sharp contour lines of varying thickness and length, the juxtaposition of contrasting colour and light patches and outlines, the breaking-up of surfaces into small areas and the frequency of blank spaces all set a 'rapid' tempo, typically associated with duels and battles. In miniatures depicting audiences, lovers' trysts and conversations, on the other hand, a 'slow' tempo was employed: the blank spaces were not so frequent, surfaces were broader, light and colour patches and outlines were juxtaposed in more restful combinations, and the line was smoother and more flowing. The work's emotional expressiveness largely depended on this technique and rhythmic devices could express stately solemnity or oppressive tension, serene calm or all-consuming melancholy.

The conventional nature of the representational resources employed was a defining feature. In medieval Islamic art it was determined by the conceptual and aesthetic goals derived from the requirements of a religious and symbolic

12. Pedersen, 1984, pp. 89–100.

interpretation of the world. The miniature developed its own conventional language. Space, landscape and architecture were all represented conventionally. Local features were omitted; only the most generalized, ideal and perfect elements were recorded. The same laws of generalization and conventionality were also applied to the representation of human beings. All individual traits disappeared and only the most typical common features were conveyed. The real individual was transformed into a specific type possessing the qualities most typical of a particular personage and the conventional signs that went with it. He or she was represented in accordance with the prevailing canon of beauty, which strictly defined the pose and the gestures, the oval shape and the features of the face. In early miniatures, the faces were so uniform that it was practically impossible to differentiate between men and women; in order to individualize a hero, his name had to be written above him.[13]

As the art of the miniature developed, attitudes towards the human form gradually altered. Its representation, while remaining within the tradition of artistic convention, became increasingly individualized, more natural in its rendering of movement and more authentic in its evocation of the human figure. The human image in art is bound up with the notion of the portrait, which had long existed in the painting of Central Asia. During our period, the individual features of the subject were conveyed by means of conventional expressions, and the general appearance was typified. But neither the conventionality nor the typification of the subject's appearance prevented the onlooker from recognizing an actual individual face in the portrait, and the boundary between reality and the conventional language of the miniature was readily negotiated by the initiated viewer.

The illustrated manuscripts that have come down to us do not reflect in equal measure all the stages in the development of the miniature. Examples from the very earliest period have not yet been discovered. Early works which have been preserved provide evidence of attempts to use particular artistic resources and techniques to represent space (by extending the range of representation of the real world), landscape (from a few features to an integrated image of nature as a whole) and architecture; to convey the movements of human beings and animals; and, lastly, to establish a relationship of scale between figures and background. A process was at work which would lay down the artistic features of the medieval miniature and define its specific language. The period in question covered the thirteenth century and the first half of the fourteenth, with artistic centres in Shiraz, Tabriz, Baghdad, Herat and Samarkand.

The earliest illustrated manuscript is a copy of *Warqa u Gulshāh* by ᶜAyyūqī (see Chapter 15, Part One, p. 375), which dates from the end of the twelfth or the beginning of the thirteenth century (Fig. 3): the style of the mini-

13. Melikian-Chirvani, 1970.



FIG. 3. Illustrated manuscript of *Warqa u Gulshāh*.
(Photo: © Topkapi Saray Museum, Istanbul, H. 841, fol. 33b.)

ature is linked to the tradition of eastern Iran and Khurasan and is characterized by its monumental quality, derived from the traditions of pre-Islamic wall painting.[14] Such miniatures are generally dominated by the symmetry of a frieze-like structure. The figures are separated by a tree or branch; a strict rhythm is established by alternating elements in a uniform, linear composition. At the same time, new features make their appearance – a product of the influence exerted on the miniature by the planar ornamental painting of Muslim architecture.

14. Melikian-Chirvani, 1970.

Developments in the western Iranian lands under the Il Khanid and Turkmen dynasties

In the thirteenth century, the development of the miniature, as of all other expressions of culture, was brought to a halt by the Mongol conquest of Central Asia. Many of those engaged in cultural activities, including artists, fled to the south of Iran. The art of painting continued to develop there as can be seen from the Shiraz miniatures of the first half of the fourteenth century, which represent a continuation of the same line of development as the *Warqa u Gulshāh* miniatures of the late twelfth and early thirteenth centuries. The illustrations of the manuscripts of the *Shāh-nāma* which appeared in 1330, 1333, 1335, 1341 and 1352 are typical examples of Shiraz painting.[15]

The general style of the miniatures continued to be monumental and conceptualized. In most cases, the structure of the composition still resembled a frieze. But, in comparison with painting at the end of the twelfth and the beginning of the thirteenth century, the composition showed signs of further development, becoming more varied. The figures were either arranged diagonally or one above the other. Colour was also used to divide the surface into different planes: this was to become a favourite device in the Shiraz miniature. The above-mentioned features represent the first traces of a new attitude towards composition, which, to some extent, prepared the way for a qualitative change in the Shiraz miniature at the end of the fourteenth century.

Comparing the attitude towards landscape in the *Warqa u Gulshāh* miniatures and in the *Shāh-nāma*, it may be noted that only isolated elements of the landscape are depicted in the former: a tree, branches, flowers, a patch of grass denoting the earth; whereas in the illustrations for the manuscripts of Firdawsī's *Shāh-nāma* some development in the landscape is already apparent: hills, rivers and trees can be seen and the representation of vegetation is more varied. Thus a school of painting emerged in Shiraz in the first half of the fourteenth century that maintained and continued the tradition of the pre-Mongol miniature of the twelfth and early thirteenth centuries.

From the end of the thirteenth century, schools developed in Tabriz, and later in Baghdad, in which the artistic processes differed from those found in the Shiraz miniature. Their appearance was due to the cult of Chinese art introduced by the Mongols. At the same time, Byzantine art also continued to enjoy considerable influence in those two centres. Examples of the painting of the period demonstrate that, throughout the fourteenth century, the schools of painting of Tabriz and Baghdad engaged in intense efforts to work out their own artistic language by assimilating in a creative manner the achievements of the two earlier cultures while maintaining their own traditions. The search for

15. Gray, 1961, pp. 57–9; Grube, 1962, pp. 1–26; Ashrafi, 1974, pp. 10–14, Pls. 1–6.



FIG. 4. Humāy at the court of the emperor of China.
Dīwān of Khwājū Kirmānī, 1396, Baghdad.
(Photo: © By permission of The British Library, Add. 18113, fol. 12r.)



FIG. 5. Throne scene. *Shāh-nāma* of Firdawsī, 1371.
(Photo: © Topkapi Saray Museum, Istanbul, H. 1511, fol. 276a.)

new artistic means of representing space at different stages in the development of painting was reflected in the cycle of miniatures of the *Shāh-nāma*, created in Tabriz in 1330–40 (the former Demotte Collection), and in six illustrations to the poem *Humāy u Humāyūn* by Khwājū Kirmānī, 1396, painted in Baghdad by the great master Junayd Sultānī (Fig. 4).[16] These miniatures exerted a formative influence on the subsequent evolution of the art of the miniature and on the elaboration of its specific artistic language.

There were no close contacts between schools of painting in Central Asia during the fourteenth century. The only link that can be detected during the

16. Stchoukine, 1958, V, fasc. 2, pp. 83–96; Gray, 1961, pp. 46–7; Grube, 1962, Pls. 12–18; Grabar, 1969.

first half of the century is the tradition of choosing the subject of the miniature from a particular poem. In the second half of the century, however, the link between the different schools can be traced in certain artistic features. From the 1370s it is possible to follow, in the Shiraz miniatures of the *Shāh-nāma* (Fig. 5),[17] the use of the new principle behind the construction of space, spreading out from the bottom upwards, that had been developed earlier by the Baghdad–Tabriz school. But the innovation in question was creatively assimilated by the artists of Shiraz and became an integral part of the dominant, rigorously planar system that had been prepared for such an advance by its own inner development.

Closer links developed between the painting styles of Shiraz, Tabriz and Baghdad at the very beginning of the fifteenth century. A large-scale migration of artists took place at that time, starting with Timur's conquest of Baghdad in 1393 and 1401 and of Tabriz in 1402, and the transportation of craftsmen to his new capital, Samarkand, and to the court of his nephew, Iskandar Sultan, the governor of Shiraz. In their new workshops, the miniaturists adapted to the prevailing tastes and ideals as well as introducing many elements from the traditions in which they had been trained and in which they had worked before their transfer. The Shiraz miniature was greatly enriched by the achievements of different schools of painting and an overall artistic style took shape, the language of the miniature.

The style of the Shiraz school of that period can be seen in the miniatures of two manuscripts of an *Anthology of Poetry* dated 1410–11 (British Library, London, and the Gulbenkian Collection, Lisbon) (Fig. 6),[18] which are of major significance in the history of art. The establishment of the canon of miniature painting that was subsequently adopted by artists may be regarded as dating from that time. The Shiraz miniature achieved a synthesis between the spatial quality of the Baghdad–Tabriz school and the planar nature of Shiraz painting that, above all, fulfilled the function of illustrating the flat surface of the page without violating the conventions of the artistic language of the miniature. At the same time, a system of specific compositional patterns emerged as a result of the selection and canonization of favourite compositions. All this testifies to the fact that an artistic language and style were being forged for the miniature at the beginning of the fifteenth century within which it would develop in subsequent years.

17. Gray, 1961, p. 63.
18. Ibid., pp. 73–7, 79.



FIG. 6. *Anthology of Poetry* of Sultān Iskandar, 1410–11.
(Photo: © By permission of The British Library, Add. 27261, fol. 61r.)

The Timurid period and the florescence of the Herat school

The following period (the second half of the fifteenth century) was characterized by a refining of the artistic language of the miniature that led to a golden age of painting. It was associated, first and foremost, with the work of the Herat school and with the painting of Bihzād (*fl.* later fifteenth and early sixteenth centuries) and the artists of his circle who perfected the artistic resources and techniques of the genre. The fundamental discovery was the necessary relationship between all elements of the composition, within which man became the centre of the picture.

Bihzād stands out clearly as a key figure in the overall development of the art of the miniature. Those of his works that have survived reveal a great master who, on the one hand, brought to a successful conclusion the fundamental creative experiments undertaken in the painting of the preceding period and, on the other, was the initiator of novel processes which to a considerable extent were to determine the development of the miniature in Central Asia throughout the sixteenth and seventeenth centuries. The sources of his art lay in the early Herat miniature with whose traditions it maintained an unbroken link.

The Herat school was formed in the 1420s when the finest masters from Tabriz, Baghdad and Shiraz were assembled in that city. From the beginning of the fifteenth century, Herat, which had long been a town of considerable size, began to acquire the status of the Timurid capital. The architecture, literature, music and trades developing there produced remarkable results. But the city was most renowned at the period for its manuscripts which were produced in the *kitāb-khāna* of Baysunqur and Sultān Husayn Bayqara, where there was a brilliant group of masters of the art of the manuscript; there were over 40 calligraphers alone, according to the report by the contemporary historian, Dawlatshāh Samarqandī. The Herat manuscripts from the years 1420–30 that have survived (illustrations of Saᶜdī's *Gulistān*, Khwājū Kirmānī's *Humāy u Humāyūn* (1427) (Fig. 7) and a *Shāh-nāma* (1430))[19] display both their link with the painting of the previous period and the achievements of the Herat school. The Herat artists, already able to apply expressive techniques to good effect, reached a level at which they began to tackle the challenging problems of the pictorial expression of emotion through poetically elevated representations of nature; and the different moods associated with scenes of pomp and ceremony or the tender encounter of lovers (Fig. 8) on the one hand, or with tense battle scenes on the other. Rhythm and colour became dependent on the subject. Never before had the palette been so pure and vibrant. The main

19. Robinson, 1965, p. 46, Pls. 13, 14; Stchoukine, 1954, Pl. LV; Gray, 1971.



FIG. 7. *Humāy u Humāyūn* by Khwājū Kirmānī, 1427.
(Photo: © By permission of The British Library, Add. 18113, fol. 18v.)



FIG. 8. Humay and Humāyūn in the gardens of the Chinese emperor, 1430–40.
(Photo: © Musée des Arts Décoratifs, Paris – Laurent-Sully Jaulmes.)

background, occupying most of the surface of the work and hence determining the overall tonality of the Herat miniature of that period, consisted of light, soft tones on which the red and blue highlights in the attire of the figures gleamed like precious stones (Fig. 9).

The draughtsmanship also became more skilful, with greater emphasis on the detailed, graphic rendering of outlines. A sharp, hard, finely adjusted line circumscribes every detail of the composition, giving it a finished, independent look. Every outline here takes on its full value: there are no half-tones or attenuated effects. The geometrically precise, measured representation of architecture and architectural ornament, characterized by fragmentation of form, isolation of detail and accuracy of rendering, impart a graphic quality to the overall structure.

Bihzād combined the best of previous practice and discovered within the already fairly well-developed system of artistic language employed in the miniature new means for its further refinement. He developed every kind of miniature painting in his work: figurative, battle scenes, genre painting, lyric-epic and portraiture. The most common was the figurative: ceremonial or festive occasions in interior settings, in the open air or in a garden with a palace in the background. A typical example of this type of miniature is the diptych by Bihzād entitled *The Celebration at the Court of Sultān Husayn* from the manuscript of Saᶜdī's *Bustān* [Garden] of 1488.[20] The artist has arranged the figures carefully, positioning each of them as engaged in a specific action. Bihzād introduced a new content into the traditional representational scene by reflecting the wider world (to the extent possible in the miniature with its conventions and within the framework of the genre) and by showing various aspects of court life, including a host of details of everyday activities. In one corner we see a group of drunken guests, in another some Negro attendants or yet again a scene depicting the punishment of a servant. We are thus presented with a *tableau vivant*, typical of the court life of the time. Examples of battle scenes are provided by the illustrations of the battle between the parent tribes of Laylā and Majnūn and the pursuit of an army in a manuscript of 1494 of the poet Nizāmī Ganja'ī's *Khamsa* (Fig. 10).[21]

There are many new elements in this traditional genre: armed clashes are vividly represented and the opposing parties are clearly distinguished. All the scenes are full of movement, with a complex rhythm of lines and splashes of colour intensifying the momentum within the miniature and the strained atmosphere of battle, as if to convey the actual sound of combat. Such dynamic images of fighting and such varied battle scenes were previously unknown in the art of the miniature. The encounters of Laylā and Majnūn and of Farhād

20. Stchoukine, 1954, Pl. LXXIX; Gray (ed.), 1979, pp. 200–1.
21. Ibid., Pls. LXXXI, LXXX; Gray (ed.), 1979, pp. 194–5; Gray, 1961, p. 89.



FIG. 9. Peoples of Qanqurāt: manuscript of Rashīd al-Dīn copied by Hāfiz-i Abrū for Shāh Rukh's library in the workshop of Baysunqur (Suppl. Persan, 1113, fol. 53). (Photo: © Bibliothèque Nationale de France.)



FIG. 10. Battle between the tribes of Laylā and Majnūn. *Khamsa* of Nizāmī, 1494.
(Photo: © By permission of The British Library,
Add. 25900, fol. 121v.)

and Shirin provide examples of the lyric-epic genre (this same manuscript of Nizāmī's *Khamsa*) (Fig. 11).[22] They are imbued with an exceptional poetic quality. Even the draughtsmanship is different in these miniatures. The line is soft, lyrical and curving. All is tranquillity and contemplation, pervaded with stillness, a dreamlike melancholy and an atmosphere of love.

Genre miniatures are typical of Bihzād, as is the inclusion of genre scenes in illustrations belonging to another category (*The Funeral* and *The Firewood-gatherers* from the *Mantiq al-tayr* [Discourse of the Birds] by ᶜAttār, Metropolitan Museum, New York).[23] Three types of portrait are encountered in the work of Bihzād: first, the picture portrait, where the subject is represented in his or her customary surroundings; second, the solitary portrayal of the subject against a plain background; and, third, the caricature. The portrait had existed in Central Asian painting since earliest times, a fact attested to by written sources. Particularly valuable in this connection is Nizāmī ᶜArūdī Samarqandī's account, according to which Sultan Mahmūd of Ghazna (999–1030) ordered a search to be conducted for Ibn Sīnā on the basis of 40 painted portraits that he had commissioned from artists and dispatched to different provinces for the purpose of identification.[24]

A literary theme common in poetry involves two heroes becoming acquainted, recognizing each other or discovering their love through portraits. Memoirs also testify to the existence of the portrait as a genre in miniature painting. The Herat man of letters, Zayn al-Dīn Wāsifī, mentions portraits executed by Bihzād for Sultān Husayn Bayqara. From Wāsifī's narratives it is apparent that the subject was endowed with individual features and traits which presented a portrait of the living person within an idealized conceptual depiction. The boundary between reality and the conventional language of the miniature was so easily crossed that the viewer could recognize in Bihzād's portraits the likeness of ᶜAlīshīr Nawā'ī, Sultān Husayn Bayqara and the magnate Bābā Mahmūd.

The development and diversity of the portrait genre were the result of the trend towards a more realistic representation of human beings that began in the work of Bihzād. Figures became individualized through the depiction of movement and the variety of human poses and gestures as well as a closer approximation to the actual proportions of the body. Whereas earlier painting had made no attempt to delineate or differentiate figures, great attention was focused on human beings and the variety of human types in the works of Bihzād and his circle. Gesticulation became freer and more dynamic. Groups of figures were no longer just crowds but assemblies of individuals. Painted characters

22. Stchoukine, 1954, pp. 78–81; Martin and Arnold, 1926.
23. Gray (ed.), 1979, p. 190, Pl. LXI.
24. Dūst Muhammad, 1965, p. 174.



FIG. 11. Majnūn in chains before the tent of Laylā. *Khamsa* of Nizāmī, 1431, Herat. (Photo: © State Hermitage Museum.)

represented a wide variety of types, depicted at work and in everyday life: living in yurts or palaces, nursing children, preparing food or enjoying themselves. A man is shown washing his feet before entering the mosque; shepherds play on reed-pipes; then come porters, building workers, stone-cutters, grave-diggers, participants in a funeral procession, and so on.

The compositional patterns developed before Bihzād's day included a large number of scenes from everyday life, a broad range of material and an extension of the spatial boundaries of the narrative. Selecting typical episodes for a particular situation, the artist endeavoured to communicate to the picture the feeling of life in Herat in all its aspects. To achieve this end, Bihzād began by tackling the spatial problems: he reduced the dimensions of the architecture, the features of the landscape and the figures, leaving himself more room for detail and drawing the viewer's attention to the main action. All means were subordinated to that end: the architectural details and groups of secondary figures were relegated to the top, side and bottom edges of the composition, leaving the centre free for the main action as a three-dimensional space. The remainder of the scene, generally its upper half, is enclosed by a frontal wall or a hill, acting as a backdrop or background. The composition in Herat miniatures is no longer static: we find instead a clear expression of inner movement. At the same time, it acquires a peculiar stability and balance; every line and outline and the composition as a whole have a finished quality. In Bihzād's painting, the miniature reaches its zenith.[25]

The Samarkand school

The miniature also followed a distinctive line of development in the other Timurid and Turkmen artistic centres that flourished during the fifteenth century, including Shiraz, Yazd, Tabriz and Samarkand. Samarkand became such a centre at the end of the fourteenth century when Timur began to send to his capital the finest craftsmen from the regions that he had conquered, and they were put to work painting murals on the walls of palaces and creating manuscripts. The renown of Timur's magnificent library has survived the passage of time but the actual manuscripts of the period have not. The written sources provide us with indications of the stylistic trends in painting during the first half of the fifteenth century. According to the sixteenth-century historian Dūst Muhammad, the Baghdad master ᶜAbd al-Hayy, brought to Samarkand from Baghdad in 1393 by Timur, introduced the Baghdad style and all the craftsmen began to imitate his work.[26] Unfortunately, to this day, no miniatures have been found that can be assigned on the basis of their imprint to Samarkand

25. Grube, 1969, pp. 90–105; Pedersen, 1984, pp. 96–7; Bahari, 1987.
26. Dūst Muhammad, 1965, p. 174.



FIG. 12. Majnūn offers his clothes to the gazelle hunter. *Khamsa* of Nizāmī, 1446–7. (Photo: © Topkapi Saray Museum, Istanbul, H. 786, fol. 118a.)



FIG. 13. Procession of a Timurid princess.
(Photo: © Topkapi Saray Museum, Istanbul, H. 2153, fols. 3b–4a.)

before the 1440s. In this connection, the Samarkand miniatures, *The Portrait of Ulugh Beg* and the illustrations to Nizāmī's *Khamsa* copied in 1446–7 (Fig. 12), are of unique significance.[27] Their originality and high quality testify to the advanced level of development achieved by the Samarkand miniature in the fifteenth century.

Samarkand painting has a 'spare' quality that is absent from that of Herat and much of the surface is left blank. The structure of the composition, which is based on accentuated vertical and horizontal lines, is particularly well defined. The elements of the composition, the landscape, the architecture and architectural decoration are enlarged; there are few figures. Every particular affirms that the Samarkand miniature has its own, special decorative structure. A general atmosphere of serene calm prevails in every detail (Fig. 13).[28]

27. Ashrafi, 1988, pp. 25–30; Gray (ed.), 1979, p. 169, Pls. LV–LVI; Ashrafi, 1987, pp. 75–85.
28. Ashrafi, 1987, pp. 84–5.

Distinct schools likewise developed at the provincial courts of Shiraz, Yazd and Tabriz, although a consideration of them lies outside the scope of this book. The development of the miniature in all these places brought out both the originality of each school and their similarities. Each made its own contribution to the enrichment of the artistic language of the medieval Islamic miniature. The development of painting is clearly revealed as a single process involving an understanding of previous traditions, a creative exchange of achievements between different schools, an identification of fresh artistic challenges and a search for a distinctive artistic language.

Part Two

THE DEVELOPMENT OF CALLIGRAPHY

(P. Soucek)

In the middle of the eighth century, the inhabitants of Central Asia employed numerous scripts for the many languages they used in religious and secular life. This linguistic and epigraphic multiplicity was particularly pronounced among groups with broad international connections such as the Manichaeans.[29] Even a single language, such as Old Turkic, could be written in a variety of scripts.[30] By the end of the fifteenth century, however, this epigraphic and linguistic variety had considerably diminished. The principal catalyst for this transformation was the spread of Islam, which carried with it both the Arabic language and the alphabetic system with which it was written.

The impact of Arabic and of its alphabet went beyond the fact that it also came to be used, in slightly modified versions, for the transcription of various Iranian, Turkic and Indian languages. The introduction of Arabic, which was initially spread in the region primarily through its role in the practice and propagation of Islam, also served to augment the prestige of both the activity of writing and the written word. Moreover, the new importance accorded to writing gave greater prominence to the production and embellishment of books.

In the mid-eighth century several book-making traditions were current in Central Asia. One was the *pothī* format that had originated in India. Books were made from long narrow sheets of tree bark or palm fibre. After a text had been incised or copied on to such a surface, the single sheets were pierced, strung on cord and protected by stiff outer covers.[31] This book format was

29. Litvinsky, 1996, pp. 415–19.
30. Gabain, 1950, pp. 9–41.
31. Losty, 1982, pp. 5–15.

used in Central Asia particularly for the copying of Buddhist scriptures; some of those books are well written and embellished with pictures.[32]

Several factors, however, inhibited the development of a broader concern for calligraphy from the book-making traditions of Central Asia. In India proper, a relatively low status was assigned to writing, an attitude that reflects the long-standing reliance in that region on oral transmission for preserving important religious texts.[33] In addition, some believed that the religious merit attached to the copying of Buddhist scriptures could also be attained through their quantitative replication and this encouraged the use of printing rather than handwriting for religious texts. Since the skill of printing had spread to Central Asia from China, such texts were often in the scroll or 'butterfly' formats popular there.[34] The sacred books of the Manichaeans were renowned for the beauty of their illustrations, illumination and calligraphy but that community's diminishing importance after the mid-ninth century limited their impact on the broader culture of Central Asia. Manichaean reliance on pictures as a vehicle of religious instruction may also have diminished the expressive use of calligraphy.[35]

By way of contrast, the special importance that Islam accorded to its sacred volume, the Qur'an, placed writing and books at the centre of the religious and cultural life of the Islamic community. It is the prestige attached to writing which appears to have encouraged the development of calligraphy or modes of writing in which the formal aspects of a script are given an equal, or at times greater, weight than other more practical concerns such as ease of execution or even legibility. The Islamic calligraphic tradition is characterized by the concurrent use of different styles of writing in which the Arabic alphabet is written according to consciously articulated formal paradigms. The strokes from which the letters are formed can be thin, thick or variable in width. Individual letters and words may be broadly or closely spaced, overlapping or intertwined. The resulting hands run the gamut from severely rectilinear to fluid and curvilinear.[36]

Thus although the role played by writing in Central Asia from the mid-eighth to the sixteenth century was affected by the region's earlier cultural heritage, it is primarily the dual impact of Islam and of the Arabic alphabet that gave calligraphy a new prominence. The respect accorded to writing in the Islamic world is evident in correspondence, monumental epigraphy and, above all, books. The spread of Islam to Central Asia also encouraged the use of a book form of Mediterranean origin, the codex, in which leaves of parchment,

32. Piotrovsky et al., 1993, nos. 72, 73, 84, pp. 258–9, 272–3; Losty, 1982, pp. 29–36.

33. Losty, 1982, pp. 5–18.

34. Piotrovsky et al., 1993, nos. 77, 82, pp. 264, 269.

35. Mair, 1988, pp. 50–3.

36. *EI*², 'Khatt' (J. Sourdel-Thomine et al.).

and later paper, were sewn together along their vertical axis and attached to a protective cover.[37]

In the following discussion, therefore, the principal focus will be on calligraphy from Central Asia that employs the Arabic alphabet and is contained in books. The history of that tradition between the mid-eighth and the sixteenth century can be divided into two unequal segments. The first, stretching from 750 to 1258, marks the duration of the ᶜAbbasid dynasty centred in Baghdad, whereas the second, from 1258 to 1500, opens with the consolidation of the Mongol empire founded by Chinggis Khan.

These two periods, the ᶜAbbasid and the Mongol/post-Mongol, differ in various respects. The relative paucity of surviving examples from the earlier and longer period contrasts with the plentiful information available about the Mongol and post-Mongol centuries. Although the ᶜAbbasid dynasty's control over Central Asia was largely indirect, Baghdad remained a vital centre of culture and its impact is particularly evident in the history of calligraphy. During the ᶜAbbasid period, therefore, calligraphic trends in Central Asia often mirrored styles developed in Iraq. Despite strong formal links between the calligraphy of Central Asia and that of ᶜAbbasid Iraq, however, the uses to which it was put reflect local needs and concerns.

The ᶜAbbasid period

Although the importance of calligraphy to the Muslim community was evident in many spheres of life, the scripts used to transcribe the Qur'an enjoyed high prestige, and this prominence is particularly marked for the first Islamic centuries. The international character of the ᶜAbbasid culture makes it possible to identify key features of the calligraphy which circulated in Central Asia, even though most Qur'anic manuscripts from the eighth through the tenth century survive only in a fragmentary condition and among those scattered leaves none has yet been securely linked to Central Asia.

A book dealer's catalogue compiled in Baghdad in the late tenth century, the *Fihrist* [Index] of Ibn al-Nadīm, attests to the great prestige which had already been attached to writing and connoisseurship of calligraphy by the mid-eighth century. In Ibn al-Nadīm's own time many different scripts were recognized. Although his descriptions do not permit those hands to be identified among surviving calligraphic samples, his remarks do suggest that it was customary to adjust the size of a script and the thickness of its lines to the dimensions of the surface upon which a text was written.[38]

37. Déroche, 1992, pp. 17–20.
38. Ibn al-Nadīm, 1970, Vol. 1, pp. 11–16.

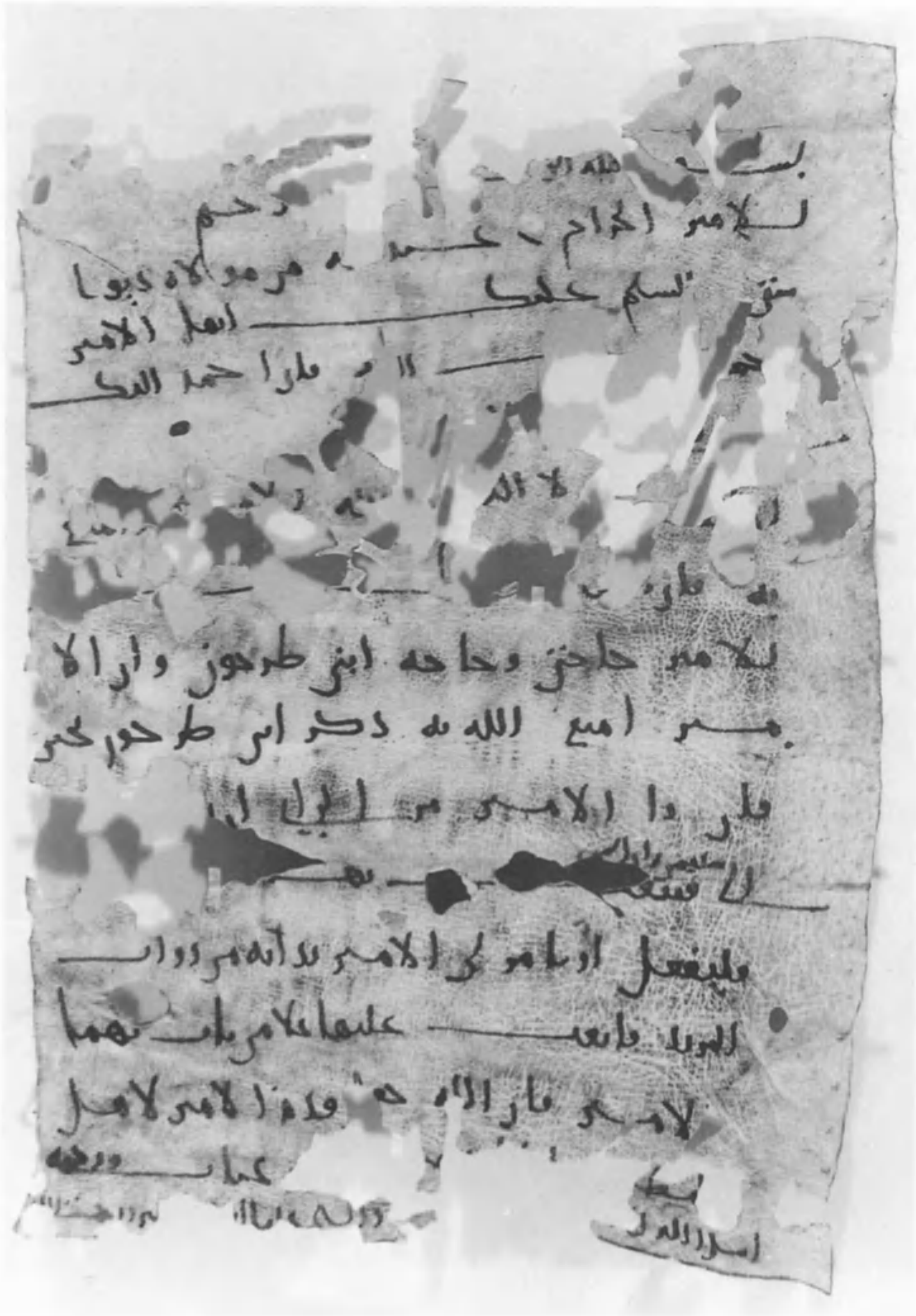


FIG. 14. Letter in Arabic on leather.
(Photo: © Russian Academy of Sciences, St Petersburg, B-12, 718–19.)

The critical importance of proportionality, spacing and visual balance in the execution of early Islamic calligraphy has been borne out in modern studies of the earliest Qur'anic scripts. By the ninth century meticulously executed and well-balanced scripts are known to have been in use in Syria and Iraq. Western scholars often label these scripts as 'Kufic', suggesting that they originated in Kufa, which does not seem to be the case. Thus here the more neutral term 'ᶜAbbasid' will be used.[39]

Since the regions of Khurasan and Transoxania, on the western edge of Inner Asia, had close ties to the ᶜAbbasid capital, it can be assumed that the styles of calligraphy in vogue in Iraq would also have been known there. The early date by which use of the Arabic language had been introduced to the western regions of Central Asia is confirmed by the discovery at Mount Mug (in the upper Zarafshan valley of north-western Tajikistan) of a letter in Arabic from the local Sogdian ruler to an Arab commander. Internal evidence permits the dating of this document to 718–19 (Fig. 14).[40] The letter is written in a clear cursive hand which uses both the horizontal extension and the spacing of letters to emphasize parts of the text such as its salutation. These adjustments also provide an overall harmony for the page.

Further evidence for the fact that calligraphers in Central Asia had mastered the essential features of scripts used at the centre of the ᶜAbbasid empire is provided by the painted inscriptions on a group of ninth- or tenth-century ceramic vessels probably made in the city of Nishapur during the Samanid period.[41] Although these inscriptions are secular in content and consist primarily of aphorisms, the scripts in which they are executed share many features with those used in early Qur'an manuscripts.

A dish now in the David Collection, Copenhagen, bears a text extolling the value of generosity inscribed in a dark-brown slip against a white ground.[42] This inscription has significant points of similarity with a number of Qur'ans written on parchment, such as the pages of a manuscript now divided among various collections (part of which is in the Iran National Museum, Tehran) (Figs. 15 and 16).[43] The texts on both the Qur'an pages and the dish are in a bold script, executed with broad strokes, in which angular geometric shapes are counterbalanced by a few letters formed of nearly solid circles. The shapes of individual letters on the plate and on the page are quite comparable, but the proportions and spacing of each text appear to have been carefully modulated to fit within a specific space. Qur'an pages of the type now in Tehran were

39. Déroche, 1992, pp. 11–19, 34–42.
40. Petrosyan et al., 1995, no. 7, pp. 122–3; Krachkovskiy, 1955, Vol. 1, pp. 181–7.
41. Wilkinson, 1973, pp. 92–4, 96–109; Gouchani, 1986.
42. Gouchani, 1986, no. 80, pp. 179–80.
43. Lings, 1976, p. 18, no. 5.

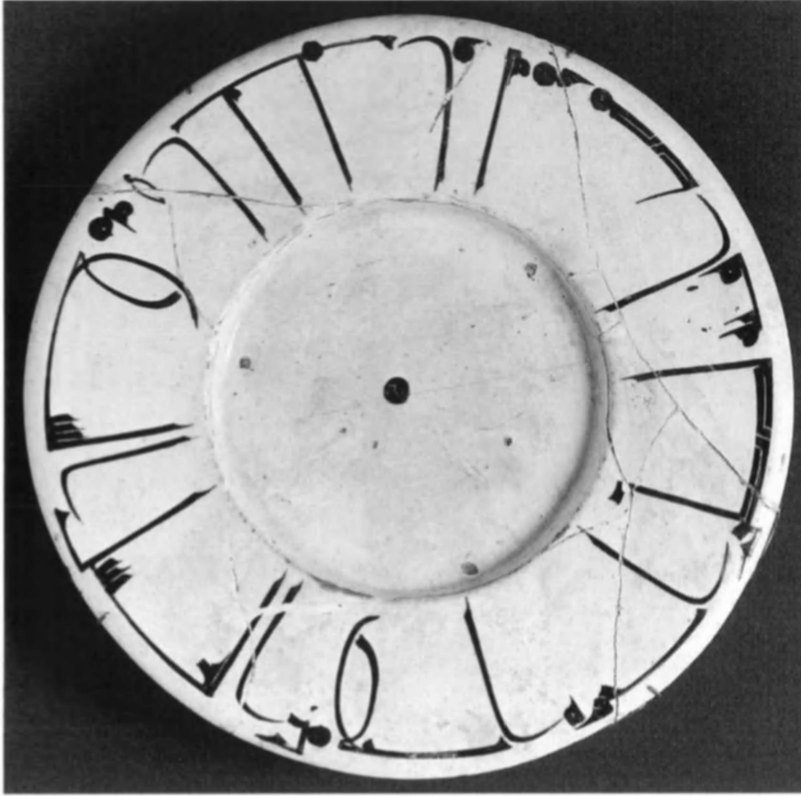


FIG. 15. Nishapur. Inscription on a pottery dish.
(Photo: © RMN.)

being produced during the middle decades of the ninth century, and the pottery vessel may be of similar date.[44]

During the first half of the tenth century, Qur'ans with a vertical orientation were copied in more attentuated variants of the "ᶜAbbasid script'. This trend is exemplified by a Qur'an on parchment from which pages are now in the Khalili Collection, London, and in the Freer Gallery of Art, Washington.[45] Some inscriptions on Nishapur ceramics, such the one on a dish now in the St Louis Art Museum, share this accentuated verticality.[46] The mannerisms and exaggeration of the St Louis text also link it to a series of Qur'ans that have various connections to eastern Iran and Afghanistan and were copied during the eleventh and twelfth centuries.

44. Déroche, 1992, group D.I or D.II, pp. 36–7, 43–5, 65–6, 69, 72–5, nos. 21, 24.
45. Ibid., no. 57, pp. 109–10; Ettinghausen, 1938–9, Pl. 930a.
46. Gouchani, 1986, no. 42 pp. 104–5.



FIG. 16. Folio from a Qur'an parchment.
(Photo: Courtesy of Iran National Museum, Department of the Islamic Period, Z. Rouhfar.)

These Qur'an copies are written on paper, a practice that becomes common in the region during the course of the eleventh century. In many of them, the text is shadowed by panels of minutely executed scrolls, giving the pages the overall appearance of an embroidered textile. An early member of this group is a Qur'an both copied and illuminated by ʿUthmān b. Husayn Warrāq in 466/1073–4, sections of which are now in the Mashhad Shrine Library.[47] In this hand, slender vertical letter shafts are counterbalanced by the wedge-shaped stylization of letters on the script's base line. Descending letters have an angular profile. The confusing name 'Eastern Kufic' is often used for this style of writing, but it appears to be the regularized version of a cursive hand distinct from the ʿAbbasid script. Here, the term 'New Script', coined by F. Déroche, will be used to identify it. This calligraphic mode seems to have been particularly popular with scribes in eastern Iran and Afghanistan.[48]

In time this New Script developed pronounced mannerisms. Its vertical shafts are increasingly slender and elongated and some are bent into ornamental

47. Mashhad Shrine Library, no. 70, fol. 2b (sura 33:31–32), Gulchīn-i Maʿānī, 1969, cat. no. 21, pp. 45, 49; it contains section 22 of a 30-part Qur'an; Lings and Safadi, 1976, no. 35, p. 33; Ettinghausen, 1938–9, Pl. 930b.

48. Déroche, 1992, pp. 132–5.

shapes. Closed letters become triangular or heart-shaped; others sprout foliate appendices. These features are evident in manuscripts copied by Abū Bakr b. Ahmad al-Ghaznawī, presumably in Afghanistan. One of his Qur'ans, now in Cairo and dated to 566/1171, opens with the description of the Prophet's miraculous night journey, or *mirᶜāj*, to the al-Aqsa mosque (sura 17:1). Abū Bakr uses pronounced horizontal extensions to dramatize the word 'al-Aqsā' which fills nearly one line of the page.[49] Another of his Qur'an copies, now in Istanbul and dated to 573/1177–8, is striking for the different sizes and shapes assumed by a given word or phrase at different points in the text. Such adjustments were used to maintain the overall balance in a line or page.[50]

The eccentric hand employed by Abū Bakr al-Ghaznawī was, however, the vestige of an earlier age. By the late eleventh or early twelfth century it was used primarily for copying the Qur'an. For other purposes it was replaced by scripts constructed on a system of harmonic proportions. The centre of these new developments was the city of Baghdad and the scribes Ibn Muqla (d. 939) and Ibn al-Bawwāb (d. 1022) are traditionally credited with devising *khatt al-mansūb*, or proportioned script, in which the scale of all the letters in a given hand has a fixed relation to each other and the dimensions of any letter can be defined by reference to the height of the alphabet's first letter, the *alif*.[51]

This process was used to regularize cursive scripts that were already in common use. The most popular was a variant of *naskh*, widely employed as a book hand, and its use gradually spread eastwards from Iraq to Iran, Afghanistan and northern India. As early as 391/1000–1, Ibn al-Bawwāb copied the Qur'an in a form of *naskh*, thereby elevating the status of this calligraphic mode.[52] By the mid-eleventh century a well-defined type of *naskh* was used in Ghazna to transcribe a text describing the virtues of the Prophet Muhammad for a member of the Ghaznavid dynasty, Abū Mansūr ᶜAbd al-Rashīd (?1049–52). A curvilinear gold script outlined in black is used for its opening invocation and title, and the body of the text is copied in black on a smaller scale.[53]

For a time Central Asian calligraphers used *naskh* concurrently with the more archaic angular scripts. Thus in the Qur'an dated to 466/1073–4 copied and illuminated by ᶜUthmān b. Husayn Warrāq, discussed above, the fluid hand of his colophon is in sharp contrast to the one that he employed for the Qur'anic text itself.[54] The growing acceptance of cursive scripts for Qur'an copies is demonstrated by a volume copied in Mashhad dated to 592/1195. This book is also

49. Egyptian National Library, Ettinghausen, 1938–39, p. 1946, no. 7, Pl. 930c.
50. Istanbul, Topkapi Sarayi Library, E.H. 42, fols. 95b–96a, sura 9:94; Lings, 1976, no. 19, p. 18.
51. Rice, 1983, pp. 7–15; *EI*², 'Ibn al-Bawwāb' (J. Sourdel-Thomine).
52. Rice, 1983, pp. 7–15.
53. Stern, 1969, pp. 7–19, 23–5, Fig. 2.
54. Mashhad Shrine Library, no. 70, fol. 77a (sura 33:31–32), Gulchin-i Maᶜāni, 1969, cat. no. 21, pp. 48, 49.



FIG. 17. Panel from a Qur'an from Bust dated 505/1111–12 (Arabe 6041, fol. 125a). (Photo: © Bibliothèque Nationale de France.)

notable for the way in which the text is surrounded by illumination of finely executed scrolls.[55]

As the taste for elaborate illumination spread, calligraphers often worked in conjunction with illuminators. This is true of a Qur'an volume now in Paris that was copied by ᶜUthmān b. Muhammad during 505/1111–12 at Bust in what is now southern Afghanistan. His forcefully executed hand gives the book a monumental appearance despite its small size (20.2 × 15.1 cm). The text's final page bears the signatures of both ᶜUthmān and the illuminator, ᶜAlī b. ᶜAbd al-Rahmān, who has incorporated his name into the book's final decorative panel (Fig. 17).[56]

55. James, 1980, no. 21, p. 36, CBL Ms. 1422.
56. Richard, 1997, no. 1, pp. 33–2, 37; Sourdel-Thomine, 1987, no. 36, pp. 74–5.

Manuscripts in which two or more cursive hands were contrasted with each other became popular in Central Asia during the twelfth century, particularly for books that included both the text of the Qur'an and explanatory materials. The most frequent scheme was to write the commentary on a smaller scale immediately below the relevant Qur'anic text. Although the earliest commentaries were written in Arabic, the ones copied in Central Asia were normally in Persian or one of the Turkic dialects.

One of the most famous Qur'an commentaries is that written in Baghdad by Abū Jaᶜfar Muhammad b. Jarīr al-Tabarī (d. 923). A condensed Persian translation of this voluminous text was prepared in Bukhara by a group of local scholars for the Samanid ruler, Mansūr b. Nūh (961–76). It provides a literal, word-for-word, translation of the Qur'an as well as more discursive comments. Shortly thereafter a similar commentary and translation in Eastern Turkic was prepared under Karakhanid auspices.[57]

Those initial efforts, meant to provide speakers of Persian and of the various Turkic dialects with aids to the study of the Qur'an, were soon followed by others, and a spate of commentaries was compiled in the eleventh and twelfth centuries. One of the most popular was written, in Persian, by Abū Bakr ᶜAtīq al-Sūrābādī (d. 1100) in the city of Nishapur some time between 1078 and 1087. His text includes colourful stories about persons mentioned in the Qur'an such as Adam, Noah and Solomon.[58]

One of the treasures of the Iran National Museum, Tehran, is an integral copy of this work, in four volumes. The final volume contains a discursive colophon in which the scribe, Muhammad b. Muhammad al-Nishābūrī al-Laythī, explains how he completed the text on 8 Rabīᶜ II 584/6 June 1189 as a gift for the Ghurid ruler Ghiyāth al-Dīn Abu 'l-Fat'h Muhammad b. Sām (1173–1203) after working on it day in, day out, for five years.[59] As befits a presentation copy, the volumes in Tehran are large (38.5 × 29.5 cm) and handsomely illuminated. The opening text pages of each volume are framed in gold and the text itself is surrounded by panels of scrolls as well as occasional foliate ornaments (Fig. 18).[60] This illumination recalls that of the nearly contemporary Qur'ans copied in the New Script by Abū Bakr al-Ghaznawī. The Tehran Sūrābādī manuscript employs three different scripts: sura headings are often in an ornamental version of the New Script, the Arabic text is in a majestic cursive hand with pronounced sublinear curves, and the Persian interlinear commentary is in a small-scale *naskh*.

Scripts popular in eastern Iran and Afghanistan such as those in Sūrābādī's commentary also provided a foundation for the development of calligraphy in

57. Eckmann, 1976, pp. 11–17.
58. Sūrābādī, 1966, pp. 4–20.
59. Ibid., p. 20.
60. Ibid., p. 21–2; Bahrāmī and Bayānī, 1949, Part 1: Figs. 4, 18; Part 2: pp. 16–17.



FIG. 18. Folio from the *Tafsīr-Surābādī*, scribe Muhammad b. Muhammad al-Nayshābūrī, 584/1189, for Ghiyāth al-Dīn Abu 'l-Fat'h Muhammad b. Sām. (Photo: Courtesy of Iran National Museum, Department of the Islamic Period, Z. Rouhfar.)

the sections of northern India which came under Muslim control during the period from the thirteenth to the fifteenth century. The Ghurid conquest of northern India in the thirteenth century must have soon been followed by the production of documents and manuscripts in Persian and Arabic, but the earliest surviving examples date only to the fourteenth and fifteenth centuries.[61]

Due to the fragility of works on paper in the climate of the subcontinent, the sequence and variety of calligraphy practised in India from the thirteenth to the sixteenth century are best understood from monumental epigraphy.[62]

61. Losty, 1982, pp. 37–41.
62. Begley, 1985, nos. 1–30, pp. 8–67.



FIG. 19. Folio in the Behārī script from a Qur'an, northern India, *c.* 1500. (Photo: © By permission of The British Library, Add. 5548, fol. 110v.)

These inscriptions in more durable materials demonstrate that Indian calligraphers developed several idiosyncratic variants of *naskh*. The one most often used in manuscripts is known as 'Behārī' or 'Bahārī' and is characterized by a dramatic elongation and thickening of sublinear letters. A monumental variant of this script appears in a mosque inscription from Gujarat dated to 1370–1.[63]

The earliest dated Qur'an manuscript which can be connected with India is one now in Geneva: it was copied at the Fort of Gwalior in 1399. Its Arabic

63. Begley, 1985, no. 18, pp. 48–9.

text displays bold horizontal elongations and is copied in gold, blue and red. The interlinear Persian translation is in a small-scale cursive script.[64] Qur'ans from the fifteenth century, such as one now in the British Library, contain the horizontal elongations and occasional overlapping of letters characteristic of the fully formed Behārī script (Fig. 19). Its interlinear Persian translation is in a more usual form of *naskh*.[65]

The Mongol and post-Mongol periods

The Mongol invasions of the 1220s must have halted the production of luxury manuscripts in eastern Iran and Transoxania. In the second half of the thirteenth century, however, a gradual revival began, particularly in western Iran and Iraq, and it also incorporated calligraphic practices of Central Asian origin. Among them was the production of Qur'ans with Turkic interlinear translations and commentaries. The first such Qur'ans must have been produced in the tenth century for the Karakhanids, but the earliest surviving examples appear to be of fourteenth-century date. One manuscript with a Turkic commentary is thought to have been copied in Shiraz and some others may be from western Iran or even Anatolia.[66]

Among them are two manuscripts which share certain traits of calligraphy and illumination, one now mainly in the John Rylands University Library, in Manchester, and the other in the Mashhad Shrine Library. The Turkic text of the Rylands copy, which also has a Persian interlinear translation, has been analysed by J. Eckmann, who concludes that it was transcribed in the late thirteenth or early fourteenth century.[67] The Mashhad copy has a colophon in Arabic and Turkic that dates it to 737/1337 and gives the scribe's name as Muhammad b. Shaykh Yūsuf al-Abārī. This scribe also complains of the faulty copy from which he has worked and insists on his efforts to correct it.[68]

The discrepancy of scale between the Arabic text and its interlinear translations is very marked in these copies. The translations are written in a very fluid hand with unusual ligatures, whereas the Arabic letters are carefully formed and rhythmically spaced. The Rylands trilingual Qur'an has certain archaic features such as its three-line text and horizontal format which suggest that it may be a replica of an earlier, possibly tenth-century, manuscript.

64. Losty, 1982, no. 18, Pl. VIII, pp. 39, 55–6.
65. Ibid., no. 20, fol. 110*b*, pp. 39, 56; for a similar manuscript, see also James, 1992*b*, no. 27, pp. 103–5.
66. Eckmann, 1976, pp. 11–13.
67. Ibid., pp. 14–17; James, 1988, cat. no. 59, pp. 173–5, 244, Figs. 121–3a, 123c.
68. James, 1988, cat. no. 58, pp. 175–7, 244, Fig. 124; Gulchīn-i Maʿānī, 1969, no. 48, pp. 107–8, Fig. p. 109.

Another Central Asian calligraphic practice carried westwards by the Mongol invasions was the use of a cursive form of the Sogdian alphabet for the transcription of both Eastern Turkic and Mongolian. The initial stage of this process, the adaptation of a Sogdian script to the transcription of Eastern Turkic or Uighur, antedates the arrival of Islam in the region and appears to have occurred spontaneously in oases such as Turfan where both the Sogdian and Turkic languages were in use.[69] Its adoption for the writing of Mongolian was a later application of this Uighur variant. Mongol tradition dates this innovation to 1204, but the consistency with which the earliest extant Mongol texts use the Uighur script suggests that the practice was already established by that time.[70] The Mongols and some of their successor states, such as the Timurids, used the Uighur script in their record-keeping and correspondence, but the surviving manuscripts in this hand are of Timurid date and will, therefore, be considered below.[71]

Despite such links to the Central Asian past, the major formative influence on that region's calligraphy from the thirteenth through the fifteenth century remained the traditions of ᶜAbbasid Iraq, particularly those associated with Yāqūt al-Mustaᶜsimī (d. *c.* 1298), calligrapher of the last ᶜAbbasid caliph in Baghdad, Abū Ahmad al-Mustaᶜsim (1242–58). In this final ᶜAbbasid phase, the *khatt al-mansūb*, or proportioned script developed by Ibn al-Bawwāb, was given a further refinement. Yāqūt's name is linked with six scripts that were to lay the foundations for calligraphic practice over the next two centuries, and those hands were traditionally divided into two categories, one more rectilinear and the other predominately curvilinear.[72]

The most rectilinear and monumental of these hands, *muhaqqaq*, was favoured for the largest and most impressive Qur'ans of the Mongol and post-Mongol eras. Following their conversion to Islam, the Il Khanid Mongols became active patrons of Islamic culture and some of the most impressive Qur'ans ever copied were made for Sultan Öljeytü (1304–16). They are all executed in *muhaqqaq* and show the full decorative potential of that script.[73]

The most majestic of them is known as Öljeytü's 'Baghdad Qur'an' (now in the Topkapi Saray Museum) and contains a *waqf* inscription dedicating it to his mausoleum at Sultaniyya. The manuscript's colophons state that it was copied in Baghdad, probably between 705/1306–7 and 710/1311–12, but the scribe does not provide his own name. D. James has suggested that he was one of Yāqūt's pupils, Ahmad b. al-Suhrawardī. This Qur'an's sumptuous illumi-

69. Sims-Williams, 1981, pp. 346–60.
70. Bosson, 1995, pp. 88–90.
71. Gabain, 1950, pp. 15–29; Sims-Williams, 1981; Ganjei, 1964; Bosson, 1995, pp. 88–90.
72. The more rectinilear scripts are *muhaqqaq*, *naskh* and *rayhān*; the curvilinear are *thuluth*, *riqāᶜ* and *tawqī*. See James, 1992*a*, pp. 14–16, 58–9.
73. James, 1988, pp. 92–103, 111–26.

FIG. 20. Folio from a Qur'an, Baghdad, 707/1307. (Photo: © Topkapi Saray Museum, Istanbul, E. H. 234, fol. 55a.)

nation is signed by another Baghdad master, Muhammad b. Aybak.[74] The text of this unusually large volume (72 × 50 cm) is arranged five lines to a page; alternate lines are written in gold outlined with a fine black line and black bordered with gold. This choice of colours underscores the shape of the letters and gives them an almost sculptural appearance. This monumentality is further enhanced by the scribe's mastery of dynamic balance and his ability to integrate the size, shape and spacing of each letter with the overall structure of a page (Fig. 20).

Another of Öljeytü's Qur'ans was prepared in Mosul and is notable for its detailed colophons and certificates of commissioning. Its 30 volumes were transcribed between 704/1305–6 and 711/1312–13 by ʿAlī b. Muhammad

74. James, 1988, cat. no. 40, pp. 92–8, 235–6, Figs. 53, 55, 61–2; Lings, 1976, nos. 46–7, p. 102.

al-Husaynī, a descendant of the Prophet, who gives his full lineage in the manuscript's colophons. Öljeytü's own titles and ancestry and the names of his viziers Saᶜd al-Dīn and Rashīd al-Dīn are included in the certificates of commissioning which open each of the volumes. The text of this Qur'an, although less impressive as a work of calligraphy than Öljeytü's 'Baghdad Qur'an', is a well-executed example of *muhaqqaq*, and is written in a black-outlined gold script.[75]

The calligraphic modes linked with Yāqūt and his pupils found particular favour with the Timurids. Timur's penchant for the grandiose, well documented in the buildings he sponsored, is also evident in the scale of a Qur'an believed to have been produced for use in the great mosque of Samarkand. Its unusually large pages, measuring 165 × 99 cm, carry seven lines of *muhaqqaq* script in a forceful style. Although this hand lacks the refinement of the work associated with Ahmad b. al-Suhrawardī, its scale and rhythmic accentuations are impressive. Now dispersed in various collections, it has been attributed to one of Timur's calligraphers, ᶜUmar-i Aqtaᶜ, although some of its pages are also credited to Timur's grandson, Baysunqur b. Shāh Rukh.[76]

The high esteem in which the calligraphy of Yāqūt and his followers was held in the post-Mongol period is also underscored by later manuscripts which reflect his style, some of which even bear his 'signature'.[77] A Qur'an manuscript now in Tehran presents a more overt example of such emulation because its colophon states that it was copied in Herat in 846/1442 by Mahmūd al-Sultāni after a manuscript by Yāqūt. Although the best-documented manuscripts by Yāqūt's followers are large-scale Qur'ans in the *muhaqqaq* script, Mahmūd's copy is relatively small (24 × 17 cm) and written in the delicate *rayhān* script.[78] This manuscript bears a particularly close relationship to a Qur'an with Yāqūt's signature dated to 698/1298, and which is now in Paris.[79]

Even though the calligraphers working for the Timurids in Samarkand and Herat showed great respect for the precedents of earlier calligraphers such as Yāqūt and his followers, they were not limited to the scripts of this classical repertoire. Newer forms of writing also gained in popularity. The greatest innovation of this period was the adoption of a fluid, curvilinear script known as *nastaᶜlīq*, which emerged in the late fourteenth and early fifteenth centuries as the preferred hand for the copying of Persian poetry. *Nastaᶜlīq* is essentially a more flowing form of *naskh* with a descending extension of certain letters along the base line of the script, but it has a tendency to link letters together, a feature of some chancery hands. *Nastaᶜlīq* is also often written with a very fine pen, which gives it a delicate appearance. Timurid and Safavid sources place

75. James, 1988, cat. no. 42, pp. 100–3, 237, Figs. 65–7, 68–72.
76. Soudavar, 1992, cat. 20a–b, pp. 59–62, Figs. 4–5.
77. James, 1992*a*, pp. 58–9.
78. Atābāī, 1972, no. 2, pp. 3–4.
79. James, 1992*a*, p. 59; Sourdel-Thomine, 1987, no. 6716; Lings and Safadi, 1976, no. 59, p. 46.

the origin of this script in the Jalayirid realm, particularly in Tabriz, and date its inception to the lifetime of Timur.[80] An inspection of fourteenth-century manuscripts, however, demonstrates that the fluidity found in *nastaᶜlīq* had been developing gradually and in more than one place. One style is connected with Shiraz and was in use by the middle decades of the fourteenth century, another variant was employed in Baghdad during the last quarter of the fourteenth century.[81]

The form of *nastaᶜlīq* in use at the Timurid court in Herat and Samarkand, however, follows the precedent set in Tabriz in the first decades of the fifteenth century. A Tabriz-trained scribe named Jaᶜfar b. ᶜAlī al-Tabrizī helped to establish this mode of *nastaᶜlīq* in Herat during the second quarter of the fifteenth century through his leadership in the Timurid court workshop. The basic traits of this script can be seen from the opening page of a copy of Nizāmī Ganja'ī's *Khusraw u Shīrīn* now in St Petersburg (Figs. 21 and 22). Its text is marked by the extensions of several letters which form a rhythmic pattern that in turn also draws attention to key words in the text such as the rhymes at the end of each hemistich.[82]

During the fifteenth century the *nastaᶜlīq* script was further developed, particularly by calligraphers working in Herat. The elongated letters were then further exaggerated by the method of drawing them with thicker strokes and cutting the pen at an oblique angle so that the calligraphic line became more variable. Occasionally a text was formed with letters cut out of a sheet of paper and then pasted on to another surface, a technique known as *qitᶜa* (*découpage*). This was done in a copy of the *diwān* of the last important Timurid ruler, Sultān Husayn Bayqara, that was probably produced in Herat at the end of the fifteenth century. One of the pages of this manuscript (now in Los Angeles) has a text cut from several shades of pastel paper that has been pasted on to a sheet of dark green paper. Although Sultān Husayn wrote this *ghazal* in Eastern Turkic, his vocabulary and literary style follow the conventions of Persian poetry.[83]

There are, however, a few examples from the Timurid period of manuscripts in Eastern Turkic written in the Uighur script, also used by the Timurids for correspondence and record-keeping. In the case of manuscripts, that script has been given a highly decorative quality. One of the most unusual and the most handsomely produced is a description of the Prophet's *Miᶜrāj*, or Nocturnal Journey, now in Paris (Fig. 23). Its text is based on an Arabic original entitled *Nahj al-farādis* [The Path to Paradise].[84]

80. Soucek, 1979, pp. 18–24.
81. Richard, 1997, pp. 61–2, 67, 71–2, cat. nos. 26–7, 33–5.
82. Petrosyan et al., 1995, no. 28, pp. 178–81.
83. Lentz and Lowry, 1989, no. 148, pp. 263–70, 359–60.
84. Séguy, 1977; Richard, 1997, no. 41, p. 77; Vámbéry, 1870, pp. 7–8.


1b

بسم الله الرحمن الرحيم

فی توحید باری جل جلاله

FIG. 21. Opening page of a copy of Nizāmī Ganja'ī's *Khusraw u Shīrīn* (B. 132). (Photo: © Russian Academy of Sciences, St Petersburg.)



FIG. 22. Khusraw's first sight of Shirin bathing.
Khamsa of Nizāmi, 1431 (VP 1000, fol. 61a).
(Photo: © State Hermitage Museum.)



FIG. 23. Folio from the *Mirʿāj-nāma* (Suppl. Turc 190, fol. 36).
(Photo: © Bibliothèque Nationale de France.)

At the climax of his journey the Prophet comes before the divine presence, where he is instructed to bow down. In the ensuing dialogue, the Prophet recites God's praises and hears himself praised both by God and by an assemblage of angels. Then God gives him instructions about the daily prayers, which the Muslim community is to repeat.[85] In this portion of the text, the phrases pronounced by the Prophet and those addressed to him are written in Arabic and then translated into Eastern Turkic. The Arabic text is copied in red *naskh*, whereas the Turkic is in black Uighur script with a few words highlighted in either red or gold. The name of God, Tengri, is always written in gold, and Muhammad's name is often in red.

Conclusion

Although the haphazard survival of Central Asian manuscripts from the mid-eighth to the sixteenth century leaves many questions unanswered, this provisional survey confirms that an intimate connection existed between the region's Islamization and the widening popularity of calligraphy in the Arabic script. The study, copying and interpretation of the Qur'an provided an important catalyst for the development and diffusion of calligraphy. The rapidity with which new trends, many of which appear to have originated in Iraq, were adopted by scribes working in Central Asia is also evidence of the intensity of communication that existed between that region and more westerly parts of the Islamic world. At the same time, regional centres such as Nishapur and Mashhad in Khurasan, and Ghazna in Afghanistan, appear to have developed distinctive calligraphic traditions, which were also disseminated to neighbouring areas.

Despite the major upheavals that it engendered in other aspects of life, the Mongol conquest did not impede the development of Arabic calligraphy. If anything, the resources devoted to the patronage of the arts by the Il Khanid Mongols and their successors spurred the production of manuscripts on an unprecedented scale. The personal involvement of members of the Timurid dynasty in the writing of calligraphy is also symptomatic of the growing popularity of this medium during the fifteenth century. During the fourteenth and fifteenth centuries the expanded production of books containing literary texts helped to give new prestige to more fluid scripts, such as *nastaᶜlīq*, although the Qur'an continued to be copied in the canonical scripts developed by scribes in ᶜAbbasid Iraq.

85. Séguy, 1977, Pl. 34a; Pavet de Courteille, 1882, text pp. 19–20; commentary pp. 12–13.

18

URBAN DEVELOPMENT AND ARCHITECTURE

G. A. Pugachenkova, A. H. Dani and Liu Yingsheng

Part One

TRANSOXANIA AND KHURASAN

(G. A. Pugachenkova)

The arrival of the Arabs

When the Arabs arrived in Khurasan and Transoxania they found few towns. The population lived mainly in the countryside, where there were scattered estates with the fortified *kushk*s (castles) of major and minor *dihqān* (landowner)-suzerains and adjacent settlements. The ancient towns had either shrunk in size (Samarkand, Merv, Termez, Balkh) or been abandoned. The new towns were few in number, and small (Panjikent).

Warfare was rife in the seventh and eighth centuries and, as a consequence, there was a general decline in building activity. This situation only changed in the ninth century, when the sphere of influence of the caliphate finally took in the countries of Central Asia and Islam became solidly established. The ᶜAbbasids relied on the local rulers, requiring only recognition of their supreme authority and the levying of the *kharāj* (land tax), and did not interfere in the internal affairs of the newly established states. One of the consequences of this policy was the rapid development of towns from the ninth to the twelfth century and the general extension of urban culture in Khurasan, Transoxania, Khwarazm and parts of the Turkish lands to the north.

TOWN-PLANNING AND THE GROWTH OF TOWNS

The following typology for towns throughout this region has been generally accepted by specialists. The original – pre-Islamic – nucleus of the settlement

was transformed into an *arg* or *kuhandiz* (fortified citadel), next to which lay the actual town, the *shahristān*, which was also walled. Outside this wall lay the district of the tradesmen and craftsmen, the *rabad* (suburb). Some towns do actually follow this plan, but it is by no means in evidence everywhere and at all times. In Samarkand, for example, in addition to the *arg* and the *shahristān* (the site of Afrasiab), two other, adjoining, urban areas took shape, the *shahr-i darūn* (inner town) and the *shahr-i bīrūn* (outer town), beyond which lay the *rabad*. Merv possessed an old *shahristān* (Gavur-Qalᶜa) but a new one (Sultan-Qalᶜa) was built, to which the main activities of urban life were transferred. A new fortified *shahriyār-arg* (town with a citadel) developed there. Immediately to the north and south lay two walled *rabad*s, which extended beyond their enclosing walls. The towns in the northern regions of Central Asia, where the population was predominantly nomadic, were quite small, with an *arg* and a *shahristān*. The outer *rabad*s were small and at times non-existent because of the danger of attacks by the nomads.

The *shahristān*s of the medieval towns of Central Asia which were established at that time were strictly rectangular in shape (e.g. Sultan-Qalᶜa at Merv), but where the town had developed in an uncontrolled fashion around an earlier settlement (Balkh, Samarkand) their outline was irregular. They had several gates, located on the main roads into the town. In Merv there were four, in Samarkand six and in Bukhara seven.

One of the principal concerns of town-planners at this time was defence. The towns were surrounded by ditches and enclosed by walls, sometimes by a double wall (Mashhad-i Misriyan, the earlier Dihistan). The walls were flanked by rounded towers from which radial fire could be directed. Particular importance was attached to the defensive capability of the gates: towers rose on either side of the gates and on top of the towers were military and surveillance platforms. Often, a drawbridge was erected to span the ditch.

There was practically nothing regular about the internal planning of the towns. To a certain extent, it was determined by the main streets, which ran from one gate to another, forming intersections at the town centre. They did not run in straight lines and there were sharp bends. These arteries determined the location of the town's focal points with small squares here and there and the main bazaars stretching along the streets, either uncovered or with light awnings, and sometimes with an extensive covering of vaulted and domed roofs. Between these main streets lay *guzār*s (Persian, lanes) or *mahall*s (Arabic, quarters), criss-crossed by a tangled web of alleys, in which living accommodation, the local mosque, the *maktab* (elementary school) and the public water cistern were to be found and which preserved the communal life-style. The different trades and crafts had their own special quarters: those with harmful side-effects such as potteries and iron-foundries were located in the *rabad*s whereas the 'clean' trades (sewing and embroidery, jewellery, etc.) were to be found inside the *shahristān*.

CONSTRUCTION MATERIALS

The architecture of the period reflected the advances which had been made, in particular in construction engineering. Unbaked brick and *pisé* (rammed earth) remained the basic wall-building materials until the tenth century, with wooden roofing or else unbaked vaulting and domes. From the tenth century, baked brick with a high-strength *ganch* (gypsum) mortar was increasingly employed in monumental architecture. Its use as a building material for walls and vaulted, domed structures provided architects with new ways of putting their ideas into practice, enabling them to devise original solutions in terms of space and volume. As a more costly building material and one whose use required great skill, it was essentially employed in monumental, mainly religious, architecture and in certain structures which had to be waterproof (bridge piers and abutments, bathhouses). It is noteworthy that unbaked brick and reinforced *pisé* structures continued to be used, as in earlier times, in secular buildings, even in the palaces of the rulers, not to speak of the living accommodation and workshops for the general population. This is not just because they were easy and cheap to make, but because clay is a poorer conductor of heat than baked brick, providing protection from the heat in summer and the cold in winter. Baked brick was, however, used for Islamic religious structures, which were built to last.

ARCHITECTURAL ORNAMENTATION

The development and refinement of various forms of architectural ornament continued from the ninth to the twelfth century. Decorative brickwork made of regular or shaped bricks, wood and *ganch* carving, passed down from pre-Islamic times but with different ornamental motifs, carved terracotta and, from the twelfth century, the appearance of glazed brick and the use of glazes (pale blue, dark blue, white) to pick out decorative motifs on carved terracotta: such was the variety of decorative techniques which, in interiors, also included decorative painting. The decorative motifs were varied but *girih* (geometric designs forming a knot) predominated. Their development was linked to the spectacular advances made in mathematical science in the medieval East, which were the basis for Central Asian architects' and decorative craftsmen's use of applied geometry. Stylized plant decoration was co-ordinated with *girih*; and Arabic epigraphy also acquired a special significance, being used for Qur'anic texts and other inscriptions containing historical information relating to influential figures and to the period at which the building was constructed. These inscriptions, which were executed in the geometric Kufic or flowing, cursive *naskh* scripts, were an important decorative element in the design of the building.

The palaces of the rulers were distinguished by their large proportions and wealth of artistic decoration. In the Samanid palace in Samarkand (the site

of Afrasiab), archaeologists have uncovered several halls in which the walls were decorated with carving in *ganch*. The motifs are large geometric figures enclosing fine plant decoration. The eleventh–twelfth-century palace in the *shahriyār-arg* at Merv is on a square plan with a small interior courtyard surrounded by both large and small rooms, but only small decorative fragments have been found. The decoration is extremely rich, however, in the palace of the rulers of Termez at the same period. A courtyard is also the key to the organization of this palace's plan. There is a portal at the entrance to the courtyard, on both sides of which are a number of differentiated rooms. Along its axis runs a five-columned portico leading to an audience hall. Within the hall a central area was marked out, at the far end of which stood the throne. Surrounding the central area and separated from it by columns was an ambulatory. The roofs were vaulted. Walls, columns and vaults were covered in the most elaborate *ganch* carving in which *girih*, in all its various forms, has pride of place, although there are also heraldic motifs – a pair of lions facing each other with jaws locked together. Carved *ganch* was also used in many decorative forms to embellish the residences of the rich; outstanding examples were discovered during the excavation of such houses at Merv, Nishapur and Samarkand.

Bathhouses

Among works of civil architecture, mention should be made of the public bathhouses. The remains of eleventh-century baths have been discovered in Taraz (a town in the area of northern Turkistan) and in Nasa (Khurasan). Premises have been found there with cisterns for hot and cold water and a system of underground flues for heating the floors with hot air. It is noteworthy that there are traces of ornamental painting, employing special water-resistant paints, on the walls of both bathhouses.

Caravanserais

Large market buildings were erected on the main streets in towns. The caravanserais formed a special category. They were to be found in towns, especially towns on the major caravan routes on which most of them were located. The builders' task was to construct a safe shelter for caravans which had been travelling for many days, providing protection from attack by robbers for the travellers and for the animals that had carried them and their wares, and pleasant conditions for their stay. Hence the solid defences of the caravanserais: high walls, reinforced entrance gates, corner watch-towers and, inside, a well-thought-out division of space to provide for sojourn and rest. Caravanserais were often also used as *ribāt*s (defence posts) for the billeting *en route* of the ruler's forces.



FIG. 1. Aqcha-kala. Caravanserai. (Photo: Courtesy of G. A. Pugachenkova.)*

Surviving eleventh- to twelfth-century caravanserais illustrate the different versions of the single design plan. Sometimes there is a central courtyard enclosed by a covered area for the summer quartering of pack animals and galleries for the winter, with separate living quarters and utility rooms for travellers and refectories and areas for the performance of devotions (Dayakhatyn on the road from Charjuy to Khwarazm). Sometimes the caravanserai is divided into two parts: in front, the courtyard and behind it the living quarters with a separate courtyard around which are *hujras* (cells), a guest room and a mosque (Ribat-i Malik on the road from Bukhara to Samarkand, Ribat-i Sharaf on the road from Nishapur to Sarakhs, Aqcha-kala in the Kara Kum between Merv and Charjuy) (Fig. 1).

On the outside, particular attention was devoted to the principal façade of the caravanserai, as if inviting the traveller to enter. A vaulted portal was opened in the centre of the façade with small towers on the corners, but the detail was worked out differently in every case. Thus the portal of the Ribat-i Malik caravanserai (1078) is set in a frame of geometric decoration while an inscription covers the intrados (Fig. 2). The walls are



FIG. 2. Ribat-i Malik caravanserai, 1078. (Photo: Courtesy of G. A. Pugachenkova.)

* All the photographs by courtesy of G. A. Pugachenkova are reproduced from Pugachenkova, 1983.

punctuated by serried ranks of fluted half-columns linked by arches: the architectural traditions of the pre-Islamic period have been preserved. At Dayakhatyn the walls are subdivided by arches with various forms of *girih* and decorated brick (Figs. 3 and 4). A similar device is employed in a different decorative structure on the façade of Ribat-i Sharaf.



FIG. 3. Dayakhatyn. Caravanserai (beginning of twelfth century). (Photo: Courtesy of G. A. Pugachenkova.)

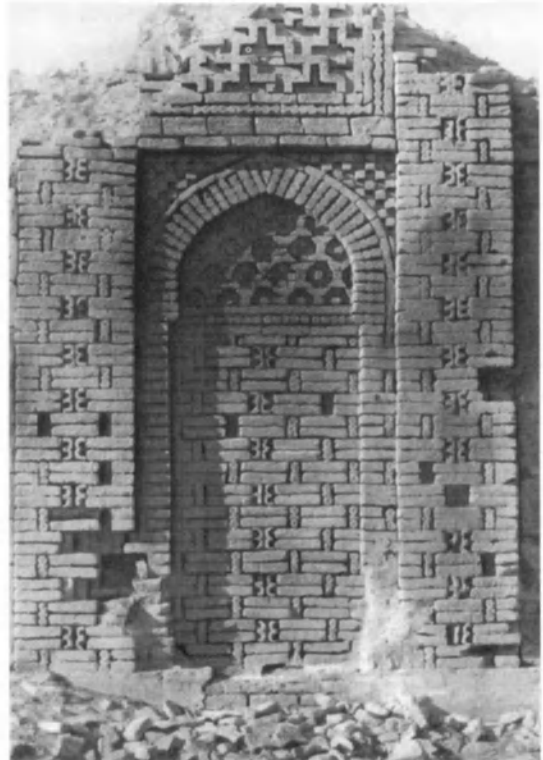


FIG. 4. Dayakhatyn. Detail of decorated brick and *girih* of the caravanserai. (Photo: Courtesy of G. A. Pugachenkova.)

Religious structures

Particular attention was devoted in the eleventh and twelfth centuries to the construction of religious buildings, especially mosques. The first mosques appeared in Khurasan and Transoxania immediately after their conquest by the Arabs: direct evidence of this is provided by the Arab historians and geographers. The earliest surviving mosques date from the ninth and early tenth centuries. One of these is the Diggaron village mosque at the *qishlaq* (winter station) of Khazar in the Bukhara oasis (Fig. 5); two others are the local Naw Gunbad mosque on the outskirts of Balkh and the Chahar Sutun in Termez. Characteristic features of these mosques are their square plan and brick supporting pillars. The pillars are connected to the walls by arches and corner pendentives effect the transition to the small domes. The number of columns varies (four, six, nine), as does the number of domes, but the basic plan remains the same. The *mihrāb* (prayer niche) is located on the *qibla* wall (which indicates the direction of worship towards Mecca).

These mosques were quite small, but life in large towns required the construction of spacious mosques, which were capable of accommodating large numbers of worshippers for Friday prayers. The Friday mosque (*masjid-i jumʿa*, or *jāmiʿ*) was therefore developed with a spacious courtyard surrounded by a



FIG. 5. Diggaron. Mosque (eleventh century). (Photo: Courtesy of G. A. Pugachenkova.)

covered area. The canopy was either supported by wooden columns, frequently decorated with elaborate carving (as at Khiva) and constructed with beams, or else consisted of a number of domes above brick pillars. There was a *maqsūra* (screen) in the main axis of the courtyard in the form of a vaulted *aiwān* (chamber open at the front). The remains of two large mosques of this type have been preserved at Dihistan (the site of Mashhad-i Misriyan). The name of the architect, ᶜAlī b. Ziyād, is preserved on the minaret of one of the mosques, built in 1108 (Figs. 6 and 7). The other mosque was built at the beginning of the thirteenth century by the father-and-son architects, Muhammad al-Husayn al-Haqq and Abu 'l-Husayn al-Haqq (Fig. 8). The same courtyard plan is repeated in small towns (Bashan, Dandanqan in the Merv oasis): the dimensions are not large but the Dandanqan mosque, which was built at the end of the eleventh century by the architect Abū Bakr, is notable for the richness of its architectural decoration.

Another category of mosque was connected with the annual Muslim festival of Qurban and the fasting month of Ramadan, when the population of the surrounding districts joined the townspeople in worship. Such mosques were therefore built in rural areas. Known as *namāzgāhs*, *ᶜidgāhs* or *musallās*, they consisted of a vast, enclosed area at one end of which was the wall with the *mihrāb*, protected by a canopy or domed gallery, and the *minbar* (stepped pulpit) of the imam. The surviving examples of the twelfth-century *namāzgāhs*

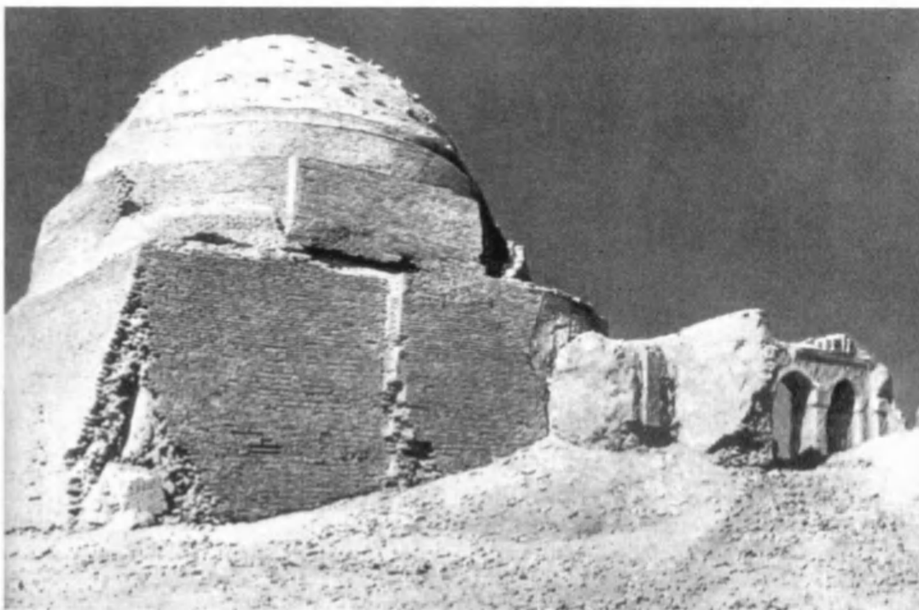


FIG. 6. Mashhad-i Misriyan. Mosque of Shir Kabīr (ninth–tenth century). (Photo: Courtesy of G. A. Pugachenkova.)



FIG. 7. Mashhad-i Misriyan. Ruins of minarets (eleventh and beginning of thirteenth century). (Photo: Courtesy of G. A. Pugachenkova.)



FIG. 8. Mashhad-i Misriyan. Remains of the portal of the mosque (beginning of thirteenth century). (Photo: Courtesy of G. A. Pugachenkova.)

at Bukhara and Nasa are on this model. A noteworthy feature of the Bukhara *namāzgāh* is the tall *mihrāb*, decorated by shaped baked bricks with an inscription in the severe Kufic script. Small local mosques were built in the different *mahalls* for the local community to perform its daily devotions. As in more recent times, they were built of less resistant materials and so have not survived to the present day.

In a special category was the commemorative mosque, erected beside the tomb of a revered religious person such as a *sayyid* (descendant of the Prophet) or one of the ʿAlids, or the *pīrs* of Sufi orders, all of them figures who tended to become canonized with the passage of time. An example of this type is the mosque of Talkhatan-Baba near the settlement of the same name in the valley of the Murghab (Fig. 9). Providing something of an architectural setting for the tomb, it is a rectangular building divided into three sections. The central section is covered by a large dome, and all the façades are faced with shaped bricks.



FIG. 9. Talkhatan-Baba. Mosque (*c.* 1095).
(Photo: Courtesy of G. A. Pugachenkova.)

An essential structure in any mosque is the minaret (*minār*) from which the faithful are called to ritual prayers. In this period it was a free-standing tower at the corner of the mosque, and the minarets of large Friday mosques were particularly tall. Minarets in Central Asia are typically round in section, tapering towards the top, but there are a number of variations (Fig. 10). At times it is simply a tall shaft, crowned by a multi-arched rotunda for the muez-



FIG. 10. Herat. Minaret of the *madrasa* of Gawhar Shād (mid-fifteenth century). (Photo: Courtesy of C. Adle.)

zin pronouncing the *adhān* (call to prayer): the shaft itself is divided by concentric ornamental bands (the Kalyan mosque in Bukhara (Fig. 11), the minaret at Vabkent, the two minarets at Dihistan, 'Būrān's tower' at Balasaghun, the minaret at Uzgend). Another version, with the shaft resting on an octagonal base, is divided vertically by close-set fluted half-columns and has a second section (the minaret at Jarkurgan by the architect ʿAlī b. Muhammad al-Sarakhsī) or an even more complex structure consisting of three sections, each of which culminates in a stalactite configuration (the minaret of Jam) (Fig. 12). They are built in baked brick, which is also used for decorative effect. These constructions stand as high as 48 m (Kalyan) or even 60 m (Jam).



FIG. 11. Bukhara. Minaret of the Kalyan mosque (twelfth century). (Photo: Courtesy of I. Iskender-Mochiri.)

MADRASAS AND MAUSOLEUMS

The Islamic period in the Middle East saw the appearance of the *madrasa* (college for higher religious studies), in which theology and law were studied (see above, Chapter 1, Part 1). Information has been preserved about the Farjik *madrasa* in Samanid Bukhara, which was destroyed in a fire, an indication that it was constructed mainly of wood. But *madrasa*s were built of durable materials as early as the eleventh and twelfth centuries. An example is provided by the ruins of the Nizamiyya *madrasa* at Khargird which reveal a square courtyard with four deep, arched *aiwān*s positioned on its axes and a *dars-khāna* (lecture room or hall); the *hujra*s for the accommodation of the students were, naturally, located in the quarters between the *aiwān*s. Excavations have uncovered the plan of the Khwāja-Mashhad *madrasa* in Sayad (a district of Qubadiyan), on which the courtyard is surrounded by *hujra*s, with two spacious, domed mausoleums on the side opposite the entrance (one of which was probably used, at first, as a *dars-khāna*). In north-western Afghanistan, on the banks of the Murghab, stand the ruins of the Sar-i Mashhad *madrasa*, which dates from the Ghurid period: the outlines of the courtyard have been uncovered with arched *aiwān*s on the axes, the ruins of the walls and supporting structures. The striking beauty of the brick and *ganch* decoration has been



FIG. 12. Jam. Minaret (twelfth century).
(Photo: Courtesy of Andrea Bruno.)

preserved: shaped brickwork, complex *girih* motifs and inscriptions with intricately interwoven lettering.

The monumental architecture of the period assigned great importance to the mausoleums erected over the graves of rulers and revered religious figures and even at *qadamgāh*s (places where prophets and saints had stayed and left their marks). The reverence accorded to them has enabled these monuments to survive the passage of the centuries largely intact. Many mausoleums built from the tenth to the twelfth century have survived, and here only their general architectural features will be mentioned, referring to the most outstanding examples.

In the first centuries of Islam, memorial structures were not erected in the countries of the Muslim world as the prescriptions of Islam required that the burial mound of the true believer should be characterized by ascetic



FIG. 13. Bukhara. Mausoleum of the Samanids (tenth century). (Photo: Courtesy of I. Iskender-Mochiri.)



FIG. 14. Bukhara. Detail of the façade of the mausoleum of the Samanids. (Photo: Courtesy of I. Iskender-Mochiri.)

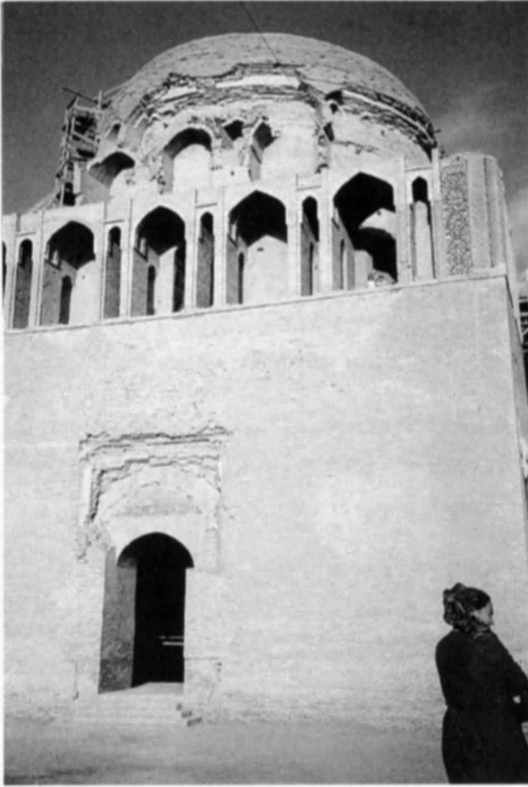


FIG. 15. Merv. Mausoleum of Sultan Sanjar (twelfth century). (Photo: Courtesy of I. Iskender-Mochiri.)

simplicity. As early as the ninth century, this prohibition was broken by the mother of the recently deceased caliph al-Mutawakkil (847–61). Of Greek origin, she obtained permission for the construction of a dynastic tomb in which two later caliphs were subsequently laid to rest. This set an example which was swiftly followed in various regions of the caliphate. The first such mausoleum in Central Asia was that of the Samanid dynasty in Bukhara, which was constructed at the start of the tenth century.

Architecturally, the mausoleums may be divided into the following main types. The central, open type (*chār-tāq*) is a square, domed structure with four or two arched doorways on the axes. The mausoleum of the Samanids in Bukhara is of this type (Fig. 13). Its cuboid volume is crowned by the hemisphere of the dome. The façades are of equal length, with centred arches, three-quarter columns on the corners and elegant overhead arching, richly faced with various forms of shaped, baked brick (Fig. 14). Another outstanding monument is the mausoleum of Sultan Sanjar in Merv (fifth decade of the twelfth century, architect Muhammad b. Atsikh al-Sarakhsī). Its scale is much larger and more majestic. The cuboid mass is surmounted by a gallery with scalloped arches divided by ornamental piers (Fig. 15). Above the gallery is an octagon

which effects the transition to the calotte of the dome, once faced with turquoise brick (Fig. 16).

In the design of the central, open-plan plus façade type of mausoleum, we find a similar use of volumes, with more emphasis placed on the development of the elevated principal façade. An example of this type is the mausoleum of Fakhr al-Dīn al-Rāzī at Kunya-Urgench (Fig. 17). In this case the cuboid structure supports a faceted drum on which the pyramid-shaped dome is placed. The decoration is concentrated on the main façade, which is divided by three arches within a surrounding frame. A calligraphic inscription in cursive script decorates this frame while an elaborate foliated decoration adorns the tympana of the arches: all of this decoration is executed in carved terracotta tiles. Calligraphy also adorns the area below the dome, the facets of which are faced with glazed brick over the plain brick beneath. Mausoleums with faceted roofs are also common in parts of northern Turkistan (for example, the mausoleum of Babaji Khatūn near Taraz).

The early version of the portal-and-cupola type is represented by the mausoleum of ᶜArab-Atā in the region of Samarkand (978) (Fig. 18). The square mausoleum was crowned by a sphero-conical dome. The façades are executed



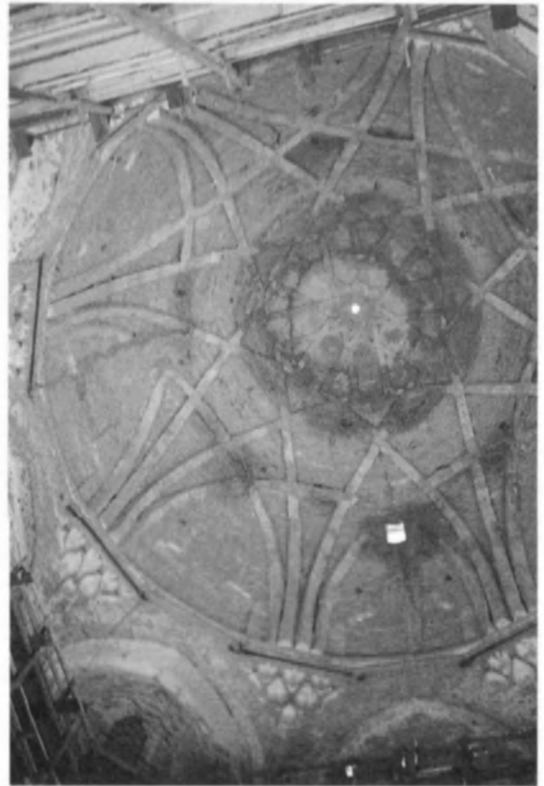


FIG. 16. Merv. Mausoleum of Sultan Sanjar, detail of the dome from outside (left) and inside (right). (Photo: Courtesy of I. Iskender-Mochiri.)



FIG. 17. Kunya-Urgench. Mausoleum of Fakhr al-Dīn al-Rāzī (twelfth century).
(Photo: Courtesy of G. A. Pugachenkova.)

in paired bricks and the main façade has a majestic portal with a broad central arch supporting a triple arching. A varied brick and *ganch* decoration adorns the portal. The Tekish mausoleum at Kunya-Urgench (*c.* 1200) illustrates a different portal-and-cupola design (Fig. 19). A cylindrical drum with trilobate niches rises above the square prism of the base and is crowned by a conical dome. The main façade features a projecting portal whose central arch is adorned with intricate stalactite modelling. In the decoration of the mausoleum, extensive use is made of glazed bricks, which form geometric patterns and the lettering of inscriptions. A distinctive group of octagonal and circular mausoleums with hemispherical domes and projecting vaulted antechambers is peculiar to the Caspian Sea region of Dihistan.

Mausoleums of the eleventh and twelfth centuries are frequently combined with other buildings such as commemorative mosques and *khānaqāh*s



FIG. 18. Mausoleum of ʿArab-Atā (978). (Photo: Courtesy of G. A. Pugachenkova.)



FIG. 19. Kunya-Urgench. Mausoleum of Tekish (*c.* 1200). (Photo: Courtesy of G. A. Pugachenkova.)



FIG. 20. Termez. Mausoleum of Hakīm al-Tirmidhī (constructed between eleventh and fifteenth century). (Photo: Courtesy of G. A. Pugachenkova.)

(hospices or dervish convents). Examples include the mausoleums of Hakīm al-Tirmidhī (Fig. 20), Sultān Saᶜādat and Aral-Paygambar at Termez, and the mausoleums of Muhammad b. Zayd at Merv and of ᶜUbayd and Zubayda at Astana-Baba.

The above-mentioned monuments illustrate the variety of designs used for mausoleums in Khurasan, Transoxania, Dihistan, Khwarazm and parts of northern Turkistan. Among the dozens of *khānaqāh*s dating from the tenth to the twelfth century and which have survived to the present, no two are exactly the same: the craftsmen managed to vary the form and proportions as well as the distribution and type of the decoration.

Architectural proportions

It has been established from an analysis of medieval architectural monuments in Central Asia that their horizontal and vertical measurements and proportions are based on mathematical laws. There are two variants. In some cases they are a multiple of a *gaz* (linear unit), which was a sort of architectural module. But geometric proportions were more frequently employed: ratios of the square and its diagonal were most common, although other ratios were also used, such as the sides of a triangle or the golden mean. Their use was due to mathematical progress in the Near and Middle East and, in particular, the development of the applied geometry techniques which were assimilated and widely employed by architects. These were responsible for the harmonious horizontal and vertical proportions of the buildings erected, both as composite units and as separate parts.

The Mongol conquests and their aftermath

Building activity throughout Central Asia was brought to a halt for almost a century by the Mongol conquests, which led to the destruction of towns and villages. A few buildings were nevertheless erected: for example, the Bukharan protégé of the Mongol Khans, Masᶜūd Yalavach, and his mother built two large *madrasas* in Bukhara. Overall, however, it was not until the fourteenth century that there was some recovery from the state of devastation, with a resumption of building activity.

Khwarazm developed particularly at that period. Its capital, Urgench, lay on one of the main trade routes, stretching from the Volga to Transoxania and Khurasan. Building proceeded at a vigorous rate under the rule of Kutlugh Timur (1321–33), actively assisted by his wife Tūra Beg Khānum, and thereafter under the local ruling Sufi dynasty. The town's development was only ended by Timur's predatory campaigns.

The architecture of the fourteenth century is characterized by new construction techniques and architectural approaches. Baked brick remained the



FIG. 21. Samarkand. Detail of decoration of an anonymous mausoleum (1385).
(Photo: © Reproduced from F. Beaupertuis-Bressand,
The Blue Gold of Samarkand.)

material employed in monumental architecture but new techniques were evolved for the construction of vaults and domes: for example, the system of triple-shelled domes. Architectural decoration changed completely with the use of multicoloured glazed tiles, enamelled bricks and slabs and glazed, carved terracotta. Multicoloured majolica appears from the 1360s, sometimes with gold paint and *engobe* applied over the glaze and inlaid carved mosaics, made from a (silicate) slurry, in the most striking colours (dark blue, sky-blue, yellow, green and also black and white) (Fig. 21).

The structure of civil edifices remained as before but our only knowledge of the subject is obtained from the written sources (for example, a reference to a vast palace in Karshi). Only a few examples of religious and memorial architecture have survived.



FIG. 22. Bukhara. Mausoleum of Buyan Quli Khan (1356).
(Photo: Courtesy of G. A. Pugachenkova.)

Single-chamber domed mausoleums are now rare. Most have two or more chambers: the *gūr-khāna* (the actual tomb) and the *ziyārat-khāna* (oratory). Thus two mausoleums standing side by side in Bukhara, the Buyan Quli Khan mausoleum (1356) (Fig. 22) and the slightly later mausoleum of Sayf al-Dīn Bākharzī (Fig. 23), each have two chambers and the former also has lateral corridors. Even more elaborate is the design of the mausoleum of Muhammad Bashar (western Tajikistan), which, in addition to the central *ziyārat-khāna*, has a further seven



FIG. 23. Bukhara. Mausoleum of Sayf al-Dīn Bākharzī.
(Photo: Courtesy of G. A. Pugachenkova.)



FIG. 24. Herat. General view of the Friday mosque.
(Photo: Courtesy of C. Adle.)

chambers containing tombs or else fulfilling secondary functions. These and a number of other sepulchres are decorated with multicoloured tiles.

The Friday mosques of Samarkand and Herat, which had fallen into decay, were restored in the fourteenth century (Figs. 24 and 25). In Urgench, Tūra Beg Khānum rebuilt the Friday mosque and, next to it, the 60 m-high minaret named after her husband, Kutlugh Timur, which has survived to the present day. The *khānaqāh* of Shaykh Najm al-Dīn Kubrā, the founder of the Sufi Kubrawī order, was also built at that period. It has four rooms: the central chamber contains the tomb of the *shaykh* and the others were clearly used for

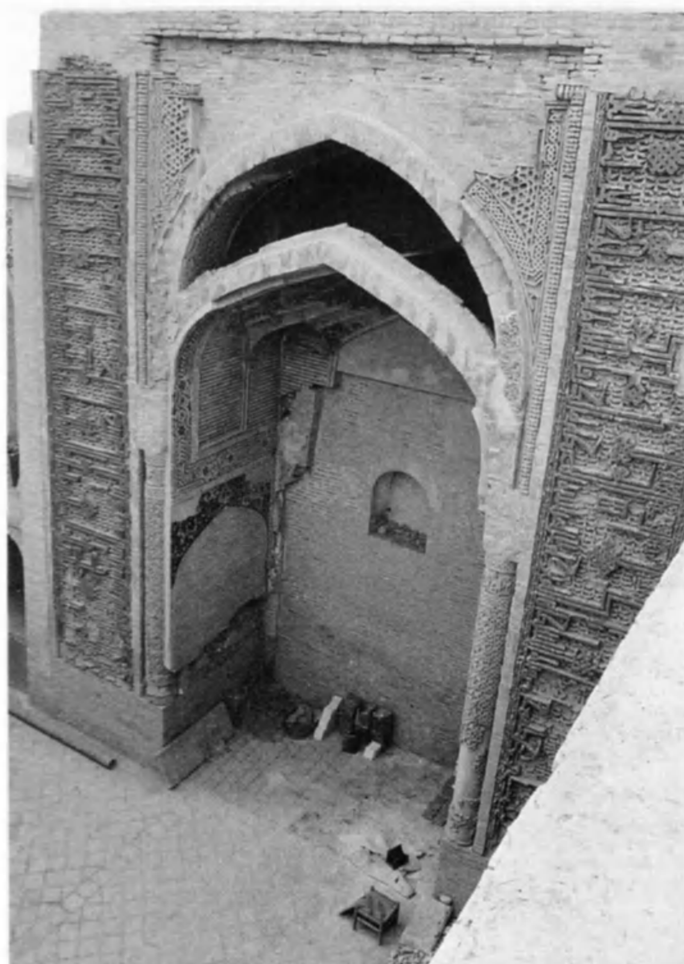


FIG. 25. Herat. One of the *aiwāns* of the Friday mosque.
(Photo: Courtesy of C. Adle.)



FIG. 26. Kunya-Urgench. Mausoleum of Tūra Beg Khānum (1360s). (Photo: Courtesy of G. A. Pugachenkova.)

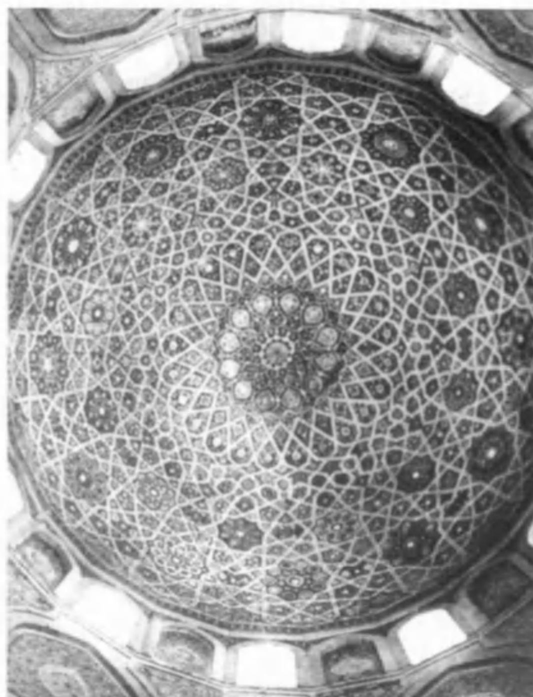


FIG. 27. Kunya-Urgench. Inner decorative dome of the mausoleum of Tūra Beg Khānum. (Photo: Courtesy of G. A. Pugachenkova.)

dervish assemblies and rites. The main façade has a well-proportioned, projecting portal whose vaulting is set in a decorative frame and is surmounted by a stalactite cornice. Multicoloured majolica covered with elaborate, interwoven plant and flower patterns and inscriptions in the mannered *dīwānī* script decorate the facing of the portal as well as the *sagan* (stepped tombstone) and stela of the *shaykh*.

The architectural masterpiece at Kunya-Urgench, referred to as the mausoleum of Tūra Beg Khānum, is actually the family mausoleum of the Sufi rulers (1360s) (Fig. 26). The elegant portal leads to a small vestibule beyond which lies the 10-sided prism of the *ziyārat-khāna*, occupying the dominant position in the overall design, and the small *gūr-khāna*. The system of domes is worthy of note: an inner decorative dome and an inner structural dome, both bowl-shaped, and an outer conical dome resting on a cylindrical drum (Fig. 27). Brick and carved inlaid mosaic are the principal elements in the decorative scheme and are employed in particular profusion on the inner dome, where a *girih* star pattern is developed on the bowl.

One of the few buildings in Khurasan dating from that time is the mau-

soleum of Shaykh Muhammad Luqmān at Sarakhs. This is a structure of monumental proportions whose square mass is crowned by a huge dome. The entrance is delineated by a portal, and baked brick is the dominant element in the structure throughout. It is similar in type to the mausoleum of Sultan Sanjar in Merv, which was built by an architect from Sarakhs.

The traditional forms of pre-Mongol architecture were also used for buildings in parts of northern Turkistan where a nomadic population was dominant. One example is the Gumbez Manas (1334) in the valley of the Talas (Fig. 28). Its cuboid volume is surmounted by a faceted dome resting on a faceted drum. The principle façade is elevated and adorned with unglazed terracotta tiles; the motifs employed resemble *kāshī* (tile) ornament.



FIG. 28. Talas. Mausoleum of Gumbez Manas (1334). (Photo: Courtesy of G. A. Pugachenkova.)

TIMUR AND HIS SUCCESSORS

The unparalleled growth in architectural and engineering construction continued during the period of Timur's rule but was concentrated in Samarkand and his native town of Shahr-i Sabz. Only individual buildings were constructed in Bukhara (Chashma-Ayyub, see Fig. 29) and on the frontier of the nomadic world at Yasa (the mausoleum of Ahmad Yasawī, see Fig. 30), whereas, like the



FIG. 29. Bukhara. Chashma-Ayyub.
(Photo: Courtesy of I. Iskender-Mochiri.)

countries of the Near East which had been plundered during Timur's campaigns, Khwarazm and Khurasan had not regained sufficient strength during this period even to make good their losses. In his own capital Timur commissioned grandiose building projects, designed to demonstrate his power to contemporaries and descendants alike. Enormous resources extracted from the plunder seized in the course of his campaigns were invested in these projects, and the best architectural craftsmen and a mass labour force brought from subjugated countries were forcibly assigned to the task. Despite the context of

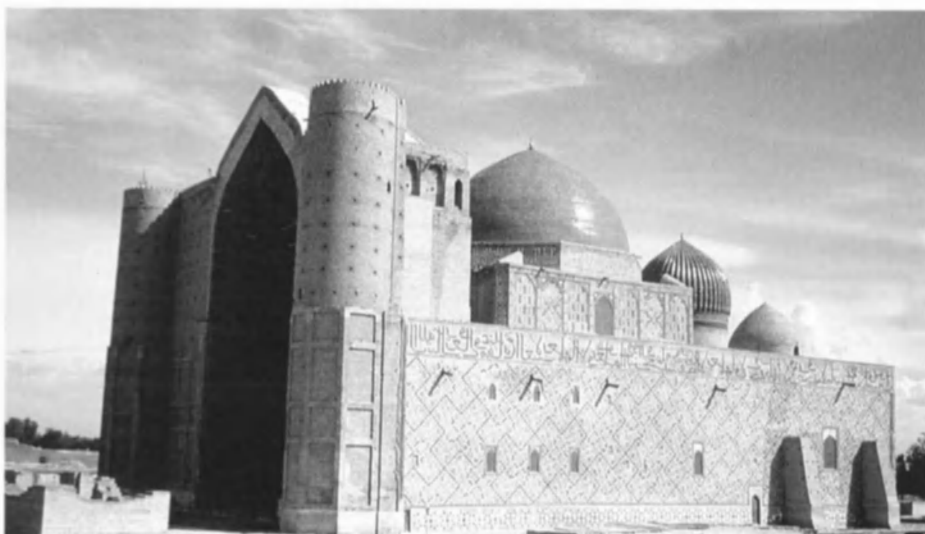


FIG. 30. Yasa. Mausoleum of Ahmad Yasawi.
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand*.)

conscription, the combined skills of the craftsmen and the fresh opportunities for creative fulfilment shaped a new style of architecture in which every element was required to be the epitome of grandeur, magnificence and beauty.

The situation changed after the death in 1405 of the Ruler of the World. Under his successor, Shāh Rukh (1405–47), the role of the major appanages became established; held by his sons and nephews, each had its own capital, court and patron for building projects. Thus in the Central Asian region, Khurasan with its capital, Herat, and Transoxania with its capital, Samarkand, were domains of this sort. In Samarkand, Ulugh Beg (prince in Transoxania 1409–47, ruler in Transoxania and Khurasan 1447–9) became the initiator of architectural projects, a role which was performed in Herat by his parents, Shāh Rukh and Gawhar Shād. Khwarazm did not recover, however, and remained a backwater for centuries. Building activity declined in Samarkand in the second half of the fifteenth century and by the end of the century had practically ceased. Herat at the same time experienced an unprecedented expansion in all areas of culture under the rule of Sultān Husayn Bayqara (1469–1506). This development is particularly evident in architecture.

TOWNS AND TOWN-PLANNING

During the reign of Timur and the Timurids, clear principles were developed in the area of town-planning. When a town was re-established it was given a proper geometric plan. That was true of the building under Shāh Rukh of the new town of Merv (the site of ᶜAbd Allāh Khān Qalᶜa) situated to the south of the pre-Mongol Sultan-Qalᶜa. The square layout was bisected by the main street, which ran from one gate to the other, and both of the resulting halves were subdivided by streets leading off at right angles. There were *hawz*s (water cisterns) and an underground town-sewage system. The town was surrounded by a ditch and walls with regularly placed semicircular towers and the gates were fortified. In the middle of the fifteenth century, in response to the growth in population, the town was expanded to the south-west by order of the Timurid Mīrzā Sanjar with the construction of an adjoining new area, similarly fortified and rectangular in plan.

Towns which had grown up at an earlier period continued to expand around their old core but certain changes occurred in their planning and development. In Samarkand, for example, the old *shahr-i darūn*, the *shahr-i bīrūn* and part of the *rabad* were grouped together in a *hisār* (inner city enclosed by walls). Within the *hisār*, a *qalᶜa* (citadel) was set up in 1370 under Timur, containing the main government buildings, the arsenal, the armourers' workshops, two palaces and also premises where members of the nobility were detained. In 1404, on Timur's instructions, work began in the *hisār* to drive a straight road from one gate to the other. By his death it had reached the centre of the town, and work was then discontinued.

The *hisār* in Herat was also ringed by walls in 1405, and in 1415 a start was made on the transformation of the old citadel of Ikhtiyār al-Dīn: the fortifications were entirely rebuilt and new buildings were erected inside the walls (Fig. 31). Under Shāh Rukh, the town's main streets were straightened and the bazaars at their intersections reorganized. The main, walled rectangle of the town was divided into four parts with a regular internal plan in each part.



FIG. 31. Herat. The old citadel of Ikhtiyār al-Dīn. (Photo: Courtesy of C. Adle)

VAULTS AND DOMES

From Timur's day vigorous building activity and the grandiose nature of their assignments presented architects with problems demanding new engineering solutions. These are particularly evident in the systems of vaults and domes. If the transition from the square plan to the dome was initially effected by means of the traditional octagon of arched pendentives, a system of shield-shaped pendentives subsequently made its appearance. Then, in the second third of the fifteenth century, a distinctive design of four intersecting, strengthened arches was developed, which reduced the diameter of the dome and at the same time expanded the total volume of the structure by means of the deep niches inserted between them. This design is combined with various types of shield-shaped pendentives and stalactite moulding, providing an effective plastic transition to the sloping bowl of the inner dome. An outer dome was usually raised above this on a high cylindrical drum: its weight and thrust were distributed by a system of internal ribs (Figs. 32 and 33).

Architectural ornamentation

Decoration at this period included a variety of facings made of glazed brick, majolica and carved, inlaid mosaic. Interiors were covered in polychrome painting, which made lavish use of gold; one particular variety known as *kundal* also features relief ornament. In the first half of the fifteenth century, dark-blue linear painting on a white background was used in imitation of Chinese porcelain. Wood continued to play an important role in the construction of everyday buildings; columns and ceilings were made of wood, frequently carved or painted (for example, the carved columns from Turkistan and Khiva). Aesthetic stone-

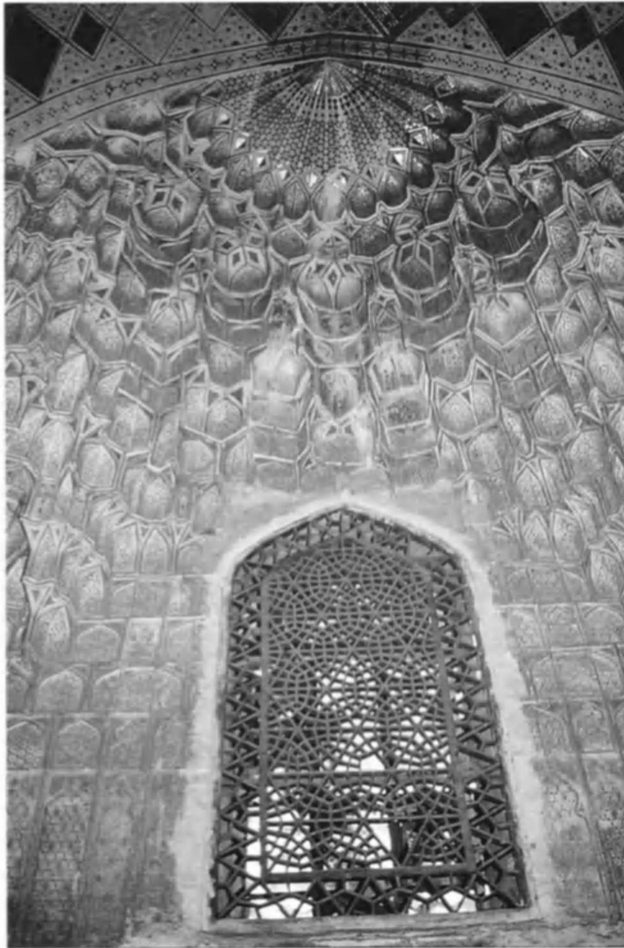


FIG. 32. Samarkand. Decoration of the inner dome of the Gur Amir mausoleum.
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand*.)

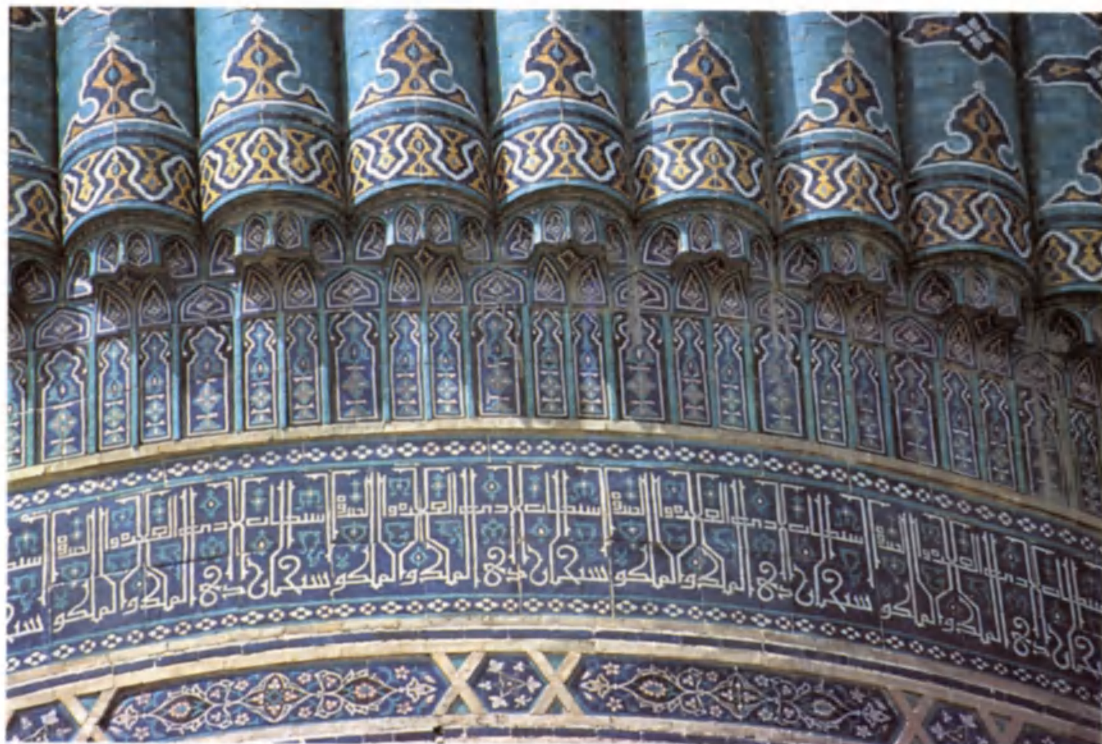


FIG. 33. Samarkand. Decoration of one of the domes
of the Bibi Khānum mosque.
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand.*)

working was brought from Azerbaijan and India; marble, jasper and onyx were used for panels, carved decorative slabs and even columns. Ornamental motifs were, as before, geometric, foliate and epigraphic; but they were given a new look. Thus a new style of writing, *thuluth*, came into fashion with its two- or three-tiered ligatures and harmoniously proportioned vertical letters.

DEPICTION OF BUILDINGS

The form and layout of buildings underwent certain changes, their typology becoming more elaborate. Most of the buildings which have survived from this period, as from earlier times, are connected with the Muslim religion or else are memorial structures. Our knowledge of secular architecture is obtained from miniatures in books which often depict dwelling-houses, palaces, monasteries and bathhouses. The dwellings depicted in miniatures usually have two storeys; the entrance has an arched *aiwān* or simply a decoratively carved door; there are windows on both floors, covered by *panjaras* (shaped grilles); on the

second floor there is a loggia or hanging balcony; the roof is flat and is used in summer as an upper terrace. In many instances, the house is fronted by a light, columned portico. The interior (in miniatures it is usually the reception room, or *mihmān-khāna*, which is shown) is decorated with tile panels and wall paintings.

PALACES

Palace architecture witnessed the development of two types. One was the official, ceremonial palace in the city, which was principally used for affairs of state. The other type (which constituted the majority) was the country residence, associated with private life, rest and diversions. Government palaces included the Kök-Saray in Samarkand, the Bagh-i Shahr in Herat and the Aq-Saray in Shahr-i Sabz, but only the last-named has survived to the present day, albeit in ruins (Fig. 34). A detailed description was, however, provided by the Spanish envoy Ruy González de Clavijo. At the entrance to the palace stood



FIG. 34. Shahr-i Sabz. Palace of Aq-Saray. (Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand.*)

a vaulted portal with robust round towers. Beyond the portal was a spacious rectangular courtyard with a pool. Opposite the entrance rose a domed hall with a portal, the vault of which was adorned with the heraldic representation of a lion and the sun. Two lesser halls were positioned on the lateral axis and luxuriously appointed banqueting rooms, galleries, and chambers both large and small were to be found on two floors in each quadrant.

The residential palaces, dozens of which were built by rulers and members of the local aristocracy, have not survived, but some idea of what they looked like is provided by the memoirs of contemporaries, archaeological remains and painted miniatures. Large numbers of such residences were built around Samarkand and Herat and in the vicinity of other towns. According to the account by Nizām al-Dīn Shāmī in his *Zafar-nāma* [Book of Conquests], one of Timur's most sumptuous country palaces, Dil-gusha, was a three-floored building with a central, domed hall surrounded by a great number of richly decorated apartments. Around the outside was a gallery with marble columns and the façades were tiled. The palace of Baysunqur on the outskirts of Herat, a magnificent building, possessed a portal which 'reached to the vault of heaven'. Vaulted *aiwāns* were located on the axes; the floors of the interiors were paved with jasper and marble and the walls were embellished with ornament and thematic painting.

Such palaces were surrounded by a *chār-bāgh*, which was laid out in accordance with specific rules. These are formulated in an agricultural treatise, the *Irshād al-zirā*ᶜ*a*, dedicated to ᶜAlīshīr Nawā'ī, which states that a *chār-bāgh* is an enclosed, rectangular garden divided by two intersecting avenues. In the centre stands an *ᶜimārat* (palace or ceremonial building), in front of which is a pool. A system of irrigation canals delivers water to all parts of the garden. Bounded by the avenues, each quarter of the garden contains a *chār-chaman*, that is four lawns on which ornamental trees and fruit-trees, bushes and flowers listed in the treatise are planted in a specified order. The central part of the *chār-bāgh* and its *ᶜimārat* are frequently depicted in fifteenth-century miniatures.

Civil and commercial architecture

Works of civil architecture include the large numbers of caravanserais which were erected in towns and along busy trade routes. One caravanserai which has survived is the Qush-Ribat in the province of Herat. It was built on the traditional plan: courtyard, arcades for pack animals, warehouses, *hujras* for accommodation, mosque and refectory. There are no decorative structures at Qush-Ribat but some urban caravanserais such as the Mīrzā'ī on the Registan in Samarkand are lavishly decorated.

Some new commercial buildings were erected in the towns. One such is the Taq-i Zargaran (Dome of the Jewellers) in Bukhara, which is basically

Timurid but was extended in the sixteenth century (Fig. 35). It stands at the crossroads of two main streets and each quarter of the arcade for shoppers contains workshops and jewellers' shops under many small domes, which surround a vast central dome. The three-dimensional design of the Taq-i Zargaran is striking but there is no decoration: the building is purely functional.



FIG. 35. Bukhara. Taq-i Zargaran (after restoration). (Photo: Courtesy of I. Iskender-Mochiri.)



FIG. 36. Samarkand. Observatory of Ulugh Beg. (Photo: Courtesy of G. A. Pugachenkova.)

Many bathhouses were also built: ruins going back to the fifteenth century are to be found in Samarkand, Balkh, Shahr-i Sabz and Tashkent. All of these buildings had a central hall, domed adjoining rooms for hot and cold water and other rooms for massage and relaxation. There was, however, no standard plan: it varied from one district to another and according to the resources invested. The performance of daily ablutions was not the only function of the bathhouse which, as everywhere in the Orient, was also a meeting-place and a place of rest. As can be seen from the miniatures, the central chamber of the bathhouse was often adorned by painting. A luxurious bathhouse of this type was erected in Samarkand by Ulugh Beg, who enjoyed spending time there in the company of his friends.

Among the engineering structures of the fifteenth century mention should be made of the *sardābs* (water reservoirs) and *yakhtangs* (ice-houses), still preserved at Merv, Anau and on old trading routes, and also the bridges (on the Hari Rud and the Balkh-ab). A unique work of civil architecture was the observatory of Ulugh Beg in Samarkand. This was the architectural embodiment of a gigantic astronomical instrument: a circular, three-floored, multi-arched building cleft by the enormous curve of the sextant (Fig. 36).

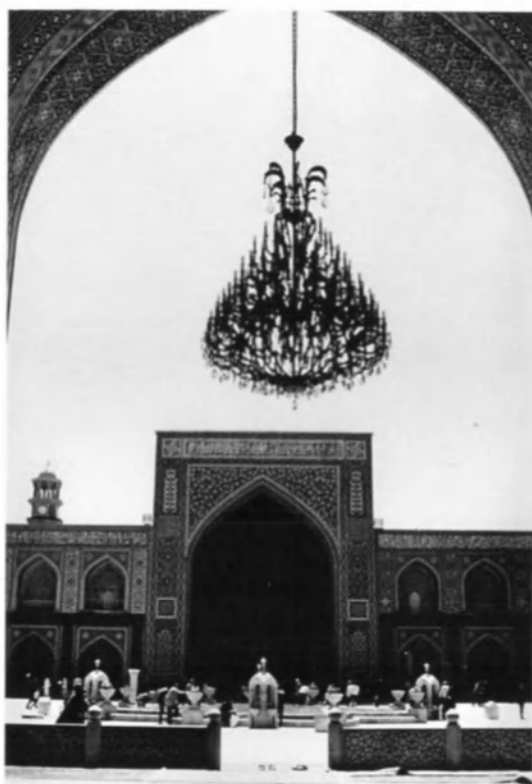


FIG. 37. Mashhad. View of the eastern *aiwān* of the Friday mosque. (Photo: Courtesy of H. R. Zohoorian.)



FIG. 38. Mashhad. View of the western *aiwān* of the Friday mosque. (Photo: Courtesy of H. R. Zohoorian.)

MOSQUES

In the area of monumental architecture, as at earlier periods, a special position was accorded to religious structures, some masterpieces being preserved to the present day. Timur and, later, the wife of Shāh Rukh, Gawhar Shād, focused their attention on the construction or radical reconstruction of the Friday mosques in the large towns. In the year 1399, on returning from his Indian campaign, Timur undertook the construction in Samarkand of a new Friday mosque, for which purpose he earmarked his rich booty (including elephants, which transported the building materials). Impressed by the magnificent mosque which he had seen in Delhi, he decreed that the mosque in Samarkand should be even grander and more sumptuously decorated. In 1416–18 Gawhar Shād built the spacious Friday mosque in Mashhad beside the local shrine of Imām al-Riḍā (Figs. 37, 38 and 39).

In 1433–4 the energetic royal builder undertook the construction of the *musallā* (open space for worship) of the mosque in Herat. At roughly the same time, Amir Jalāl al-Dīn Fīrūz Shāh completely reconstructed the Friday mosque in Herat which had fallen into decay (see above, Fig. 24). The building was



FIG. 39. Mashhad. View of a minaret from an *aiwān*. (Photo: Courtesy of H. R. Zohoorian.)

badly damaged in an earthquake towards the end of that century but was restored in 1498–1500 on the initiative of and at the expense of ᶜAlishīr Nawā'ī. All these mosques were built on a grand scale and are remarkable for their size, the harmony of their form and the magnificence of their decoration. They are similar in design: a courtyard surrounded by arched and domed arcades on brick columns or (as in Samarkand) marble columns, a ceremonial entrance portal, vaulted *aiwān*s on the axes of the courtyard, a *maqsūra* located by a monumental dome and graceful, two- or three-stage minarets. None is a copy, however. Each mosque is different, each majestic and beautiful in its own way.

Friday mosques of more modest proportions were also constructed or rebuilt on old foundations in other towns (Merv and Ziyaratgah). The Friday mosque in Bukhara was also enlarged. Each quarter had its own mosque but

most were built of perishable materials and have either completely disappeared or else been transformed over the centuries. The Baghbanli mosque in Khiva, for example, was reconstructed in the nineteenth century but it still has its fifteenth-century carved columns. The mosque of Hawz-i Qarboz in Herat (1441) is worthy of note: a small, delicate, triple-domed building with a columned, summer *aiwān*, it has an inscription bearing the name of Shāh Rukh.

Commemorative mosques built beside the graves of persons who had been held in high regard continued, as in earlier times, to play an important role. Some had a vaulted portal which seemed to shade the grave in front; others were separate structures with an adjoining mausoleum, an arrangement which allowed for variations in the overall plan and in the disposition of volume. Among the most outstanding examples dating from the fifteenth century are the mosque in Tayabad, and the mosques by the tombs of Shaykh Jamāl al-Dīn at Anau and the tomb of Abū Nasr Parsā at Balkh.

MADRASAS

The construction of *madrasas* proceeded apace throughout the fifteenth century. Starting in the year 1417, Ulugh Beg founded three *madrasas*, at Bukhara, Samarkand and Gijduvan. The one at Samarkand (Fig. 40) was not only a centre



FIG. 40. Samarkand. *Madrasa* of Ulugh Beg.
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand.*)

for the training of theologians, imams and religious lawyers, but also performed the function of a university, in which lectures were delivered on mathematics, astronomy and philosophy. Between 1417 and 1439 three small *madrasas* – Parizad, Balasar and Dudar – were erected beside the shrine of Imām al-Riḍā in Mashhad. The *madrasa* of Gawhar Shād, which contains the tombs of Herati Timurids, was built in the city of Herat; and the *madrasa* of Sultan Husayn Niᶜmatābādī was erected close by towards the end of the century. In 1444 a small mosque of perfect architectural form was also erected in the town of Khargird in Khurasan.

The design of the *madrasa* reached its zenith in the fifteenth century. The *dihliz* (entrance portal and vestibule) led to the courtyard; this was surrounded by, and separated by an arcade from, the *hujras*, usually on two floors. There were either two or four vaulted *aiwāns* on the axis of the courtyard, spacious *dars-khānas* at its corners, and a mosque. The principal façade was imposing with its raised portal and, at the corners, with turrets or graceful minarets, which had no practical function and whose sole purpose was aesthetic. A variety of decoration was employed on the outer and inner façades and, in the most important *madrasas*, also in the *dars-khānas*.

KHĀNAQĀHS

The Sufi orders played an important role in the intellectual life of the Timurid period, which explains the construction of *khānaqāhs* (dervish convents), whose spacious, domed central hall was used for meetings and religious ceremonies and which had smaller *hujras* at the corners. The *khānaqāh* of Ulugh Beg on the Registan, which has not survived, was of monumental proportions; according to Bābur, its dome was one of the tallest in the world. Among those fifteenth-century monuments which have survived are the *khānaqāh* near the mausoleum of Hakīm al-Tirmidhī at Termez, the Zarnigār-khāna at Gazurgah (Fig. 41) and the *khānaqāhs* at Arman and Ziyaratgah in Herat province.



FIG. 41. Herat. General view of Gazurgah.
(Photo: Courtesy of C. Adle.)

MAUSOLEUMS

The Timurids and their associates attached great importance to preserving the memory of members of their family, building tombs for them and for leading Muslim scholars. These structures show new features. Single-chamber mausoleums are a rarity (Rukhabad; the mausoleum of Burhān al-Dīn Saghārjī at Samarkand in the 1380s). Generally speaking, memorial buildings of the Timurid period may have from three to ten rooms, including a subterranean burial vault, a *ziyārat-khāna*, a commemorative mosque and ancillary *hujras*. Their design varies: the architects intentionally avoided using a single plan. Sometimes the mausoleum forms part of a *madrasa* (the mausoleum of Bibi Khānum in Samarkand, the tomb of the Timurids in the *madrasa* of Gawhar Shād in Herat)



FIG. 42. Herat. Mausoleum attributed to Gawhar Shād (now partly destroyed). (Photo: Courtesy of C. Adle.)



FIG. 43. Herat. Mausoleum attributed to Gawhar Shād.
(Photo: Courtesy of C. Adle.)

(Figs. 42, 43 and 44). Elsewhere it may be part of a *hazīra*, an enclosed complex around a courtyard: for example, the Dar al-Siyadat, conceived as a dynastic tomb for Timur and his sons in Shahr-i Sabz, and the *hazīra* of ᶜAbd Allāh Ansārī at Gazurgah (Figs. 45, 46, 47 and 48), where members of the house of Timur and the aristocracy lie alongside this spiritual protector of Herat. In certain cases, it is one of a number of separate but interrelated buildings (in the Gur Amir complex in Samarkand, together with the *madrasa* and the *khānaqāh* of Muhammad Sultan). It may also be part of a building with many rooms (the mausoleum of Ahmad Yasawī in Turkistan, the women's mausoleum of ᶜIshrat-khāna in Samarkand). Unhindered by a traditional plan, the architects displayed great audacity, creating a variety of volumes, capped by domes, and marking the main entrance with a portal. These monuments reflect all the splendour of the external and internal decoration techniques developed up to the fifteenth century.



FIG. 44. Herat. Inside view of the mausoleum of Gawhar Shād. (Photo: Courtesy of C. Adle.)



FIG. 45. Herat. Gazurgah complex.
Main façade of the *hazīra* of ᶜAbd Allāh Ansārī.
(Photo: Courtesy of C. Adle.)



FIG. 46. Herat.
Gazurgah complex.
Hazīra of ᶜAbd Allāh Ansārī.
Detail of the *aiwān*.
(Photo: Courtesy of C. Adle.)

FIG. 47. Herat.
Gazurgah complex. Courtyard
of the complex of the *hazīra*
of ᶜAbd Allāh Ansārī.
(Photo: Courtesy of C. Adle.)





FIG. 48. Herat. Gazurgah complex. Main entrance to the *hazīra* of ᶜAbd Allāh Ansārī. (Photo: Courtesy of C. Adle.)

ARCHITECTURAL ENSEMBLES

The types of buildings representative of late-fourteenth- and fifteenth-century monumental architecture which have been described above never stood in isolation but almost always formed part of large ensembles. Architectural ensembles are one of the outstanding achievements of urban development during this period. Sometimes a plan was devised which incorporated pre-existing structures, but often the different components were virtually contemporary. The ensemble around the central square, or Registan, in Samarkand, for example, was erected on the instructions of Ulugh Beg. The old Friday mosque already stood on the site and a covered bazaar, the Tim Tūmān Aqa, which did not fit in with the architect's plans, was demolished and a similar structure built at another location. Starting in 1417, monumental buildings were erected around the existing outline of the square: the *madrasa* of Ulugh Beg and the *khānaqāh* opposite it; on the north side, the Mīrzā'ī caravanserai; and, on the south side, the Friday mosque, completely restored by the dignitary Alike Kūkaltash, and the small Muqattaᶜ ('carved') mosque, in which the columns, ceilings and other features are covered with delicate carving. Nearby lay a *hawz*. The harmoni-

ous combination of these varied buildings provided a magnificent setting for the square, which was used for military parades, government ceremonies and popular festivities.

A different type of group was erected in Herat in the fifteenth century. It included the *madrasa* and *musallā* of Gawhar Shād and the *madrasa* of Sultān Husayn Bayqara, which seem to follow on from each other along the main thoroughfare leading to the Malik Gate. Graceful two- and three-stage minarets, portals on external walls and around courtyards, domes, wall surfaces treated in a variety of fashions, all faced with polychrome tiles, created the impression of a magnificent, unique single entity. Another, more compact ensemble developed beside the tomb of Imam ᶜAlī al-Ridā in Mashhad, where there is a vast mosque, together with three *madrasas*, dependencies and an outer courtyard.

Contemporaries have left enthusiastic accounts of the Ikhlāsiyya ensemble, which was founded in 1476–7 by ᶜAlīshir Nawā'ī on the outskirts of Herat but which has disappeared with the passage of time. In an enclosed area outside the city there stood a group of fine buildings serving a philanthropic purpose: the Qudsiyya mosque and the House of the Qur'an-reciters, the Dār al-Huffāz (later transformed into a mausoleum), the Ikhlāsiyya *madrasa*, the Khulāsiyya *khānaqāh* and the Gumbaz for Friday prayers, the Safā'iyya bathhouse and the Dār al-Shifā' (House of Healing), as well as the Unsiyya group of residences and dependencies. These structures were located on both sides of the Injil canal in the verdant setting of a well-planned park.

A picturesque type of funerary complex developed in the vicinity of the tombs of revered Muslims. The Shah-i Zinda, in Samarkand, for example, began to form around the supposed grave of Qutham b. ᶜAbbās in the pre-Mongol period but most of the building work was carried out between the 1370s and the middle of the fifteenth century (Fig. 49). A path, divided into three by two domed *chār-tāqs*, runs down the slope on which stands the old defensive wall of the early medieval *shahristān* (the site of Afrasiab). Alongside the path, closely spaced, are the mausoleums of female members of the house of the Timurids and those of various dignitaries (Fig. 50). Nearly all of them are one-room portal-and-cupola structures; only two, the 'sultans' mothers' and the mausoleum erected by Tūmān Aqa, have two rooms. Each is different in form and in its profuse ornamentation (Figs. 51, 52 and 53). The skill of the architects and the craftsmen responsible for its architectural decoration, especially that of the portals and the interiors, is amply demonstrated in the Shah-i Zinda. From whatever angle it is viewed, the ensemble offers new combinations of outline and perspective. A striking memorial ensemble of a different type is situated in the Khwāja Ahrār cemetery in Samarkand. It consists of a commemorative mosque, a *madrasa* and a nearby *hawz*; the cemetery where the influential *shaykh* is buried lies not far off. The fifteenth-century Shaykh al-Thawri and Zengi-Ata ensembles in Tashkent also have an open layout.



FIG. 49. Samarkand. General view of the Shah-i Zinda funerary complex (from south).
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand*.)



FIG. 50. Samarkand. Shah-i Zinda complex. View of the mausoleums alongside the path. (Photo: Courtesy of I. Iskender-Mochiri.)



FIG. 51. Samarkand. Shah-i Zinda complex.
Portal of Shād-i Mulk Aqa.
(Photo: © Reproduced from: F. Beaupertuis-Bressand,
The Blue Gold of Samarkand.)

The architecture of Transoxania and Khurasan from the days of Timur and the Timurids is, at its best, the visual embodiment of the creative spirit of the age, satisfying both practical requirements and spiritual aspirations; small wonder that it is referred to as the Timurid Renaissance. These architectural masterpieces, whether amid the hurly-burly of the town or in the still of the graveyard, formed the aesthetic tastes of the population as a whole, and it would only be just if we were to record the names of the builders rather than their royal clients. Eastern authors only give the name of the court architect of



FIG. 52. Samarkand. Shah-i Zinda complex. Detail of the portal of Shād-i Mulk Aqa. (Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand.*)



FIG. 53. Samarkand. Shah-i Zinda complex. Portal of Qutham b. ᶜAbbās.
(Photo: © Reproduced from: F. Beaupertuis-Bressand,
The Blue Gold of Samarkand.)



FIG. 54. Samarkand.
Signature of the master ᶜAlī Nasafī.
(Photo: © Reproduced from: F. Beaupertuis-Bressand, *The Blue Gold of Samarkand*.)

Gawhar Shād, Qawām al-Dīn Shīrāzī, who carried out his patron's grandiose schemes in Herat and Mashhad and who, towards the end of his life, built the *madrasa* at Khargird, which was completed by his associate, Ghiyāth al-Dīn.

The names of some architects and masters of architectural decoration are, however, recorded on discreetly placed plaques on the monuments; certain of these names include the *nisba*, indicating the place of birth, the others being the names of local craftsmen. The names of the following citizens of Samarkand have been preserved in the mausoleums of the Shah-i Zinda: Fakhr ᶜAlī, Shams

al-Dīn, Bahr al-Dīn, ᶜAlī Nasafī (Fig. 54), Zayn al-Dīn Bukhārī, Sayyid Yūsuf Shīrāzī, Muhammad b. Khwāja Bandgīr Tabrīzī. Muhammad Yūsuf Tabrīzī is named in the Aq-Saray palace in Shahr-i Sabz; Shams ᶜAbd al-Wahhāb Shīrāzī and Khwāja Hasan Shīrāzī are named in the mausoleum of Ahmad Yasawī in Turkistan; and the name of a local master, ᶜĪsā, is preserved on a carved column from the mosque in the same town. The entrance portal to the Gur Amir complex in Samarkand (Fig. 55) records the name of Muhammad b. Mahmūd Isfāhānī, and the Ulugh Beg *madrasa* in Bukhara that of Ismāᶜīl b. Tahir Isfāhānī. As can be seen, architecture in the days of Timur and the Timurids was shaped by the interaction between the best creative talents of the Central Asian and Iranian worlds; tribute should be paid to them and to the many others whose names have been forgotten but whose works are part of the heritage of Eastern architecture, a continuing source of delight for us and for generations to come.



FIG. 55. Samarkand. Entrance of the Gur Amir complex (after restoration). (Photo: Courtesy of I. Iskender-Mochiri.)

Part Two

Southern Central Asia

(A. H. Dani)

The period of Arab rule in Sind

This region covers the southern and eastern parts of what is now Afghanistan, together with Pakistan and northern India. The Arabs came into this region from two different directions: the Arabian Sea route and the land route through southern Persia and Makran. The first led to a pattern of sea-coast settlements and the second eventually led to an urban system connected by new trade routes, as described by al-Bīrūnī and other early historians. Among the coastal port towns Debal (or Daybul), correctly *Devālaya* (Temple), is described in detail. It is generally identified with the recently excavated remains at Banbhore, 64 km south-east of modern Karachi. Later, ᶜAmr, a son of Muhammad b. Qāsim and deputy of the governor al-Hakam (728–37), founded the city of al-Mansura near the old site of Brahmanabad – a fortified city fully developed by the Habbārī Arab amirs of Sind (861–1031). The Arabs penetrated up the Indus valley to Multan in south-western Panjab and occupied the pre-Muslim city with its citadel and its low-lying commercial and industrial settlement.

The port of Banbhore is located on the eastern bank of Gharo Creek, where the Indus debouched into the sea in the past. The Arab city stood on the ruins of the older settlement. It consisted of two main parts: the fortified city (Fig. 56), later subdivided into eastern and western sectors, and an outer, unwalled city extending over a large area on the north and east round an ancient

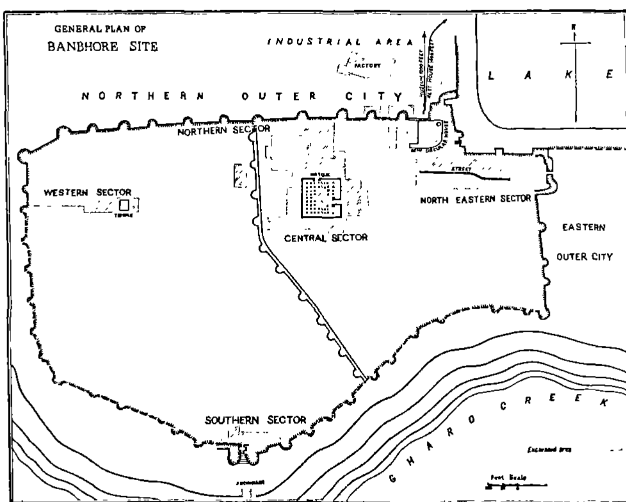


FIG. 56. Banbhore. Plan of the fortified city. (After F. A. Khan, 1969.)

lake. The unwalled portion included an industrial area probably answering to the *shahristān* (city proper) and the *rabad* (suburb). The city was well planned. The residential sectors were divided into blocks separated by streets and lanes. The houses of the élite were built of semi-dressed stone blocks and also of square-shaped baked bricks with lime-plastered walls and floors. The main citadel was later reduced to a smaller fortified area on the east with a great mosque, the *dār al-imārā* (government headquarters) and other civic buildings.

The fortification walls were built with large, heavy blocks of semi-dressed and undressed limestone set in mud mortar, and strengthened by large semicircular bastions at regular intervals. They were supported by a solid stone revetment at the base. Later in the ᶜAbbasid period, mud-bricks filled the core of the wall. So far, three gateways have been traced in the citadel. The eastern gateway overlooked the unwalled city, with a flight of steps to the lake. The other two gateways have fine dressed stone blocks, and one of them in the south is flanked by semicircular bastions. In the middle a semicircular palatial house is discernible. The great mosque is almost square in shape, measuring 36 m × 37 m, with its outer wall of solid stone masonry. In the middle is a brick-laid open courtyard with a prayer chamber on the west and cloisters on the three other sides. The prayer chamber has no *mihrāb*, but shows three rows of stone bases for wooden pillars. Only two gateways, one on the north and another on the east, are known. The design of the mosque is probably derived from those of early Islamic Iraq, at Kufa and Wasit, with their traditional *zulla* (prayer chamber), *sahn* (courtyard) and *aiwāns* (chambers with arched portals and open at the front), but the *mihrāb* is notably missing. The earliest Kufic inscription found here gives the date 109/727.

Al-Mansura is a typical example of an Arab town founded to give protection to the Muslims against surrounding foes. We also hear of the fortified town of al-Mahfuza, although this has not yet been excavated. However, it may not have been much different from the planned fortified city of al-Mansura, which is situated about 19 km south-east of Shahdadpur in modern Sangar district, Sind. The city, which had a burnt-brick fortification wall in the shape of an ovoid, had semicircular bastions, of which 245 have been exposed. Of the 4 gateways, only 2 have been excavated on the north-western and north-eastern sides of the city. The first was planned with brick-on-edge and was flanked by semicircular bastions. The city seems to have been laid out on a grid system. One main street running from north-east to south-west divided the city into two main blocks, with side streets subdividing the two blocks into sub-blocks. Out of them, the north-western block contained administrative buildings and the northern and southern blocks were industrial sectors.

The great mosque is located in the heart of the city. It is of traditional type, rectangular in plan, measuring 46 m × 76 m and is composed of a covered prayer chamber and an open courtyard, flanked by 7.6 m-wide cloisters on either side. The roof was supported on wooden pillars resting on square brick

bases, with 6 rows of 14 pillars. The *miḥrāb* is semicircular in plan and faces the central aisle. There was an elaborate arrangement for water supply and sewage disposal; the drains were covered and some of them had terracotta pipes.

The Ghaznavids in Afghanistan and north-western India

There are several monuments in eastern and southern Afghanistan and in what is now Pakistan from the time of the Ghaznavid sultans (see Volume IV, Part One, Chapter 5). Among the cities, the most important were Bust or Qalᶜa-i Bist in the Helmand valley, the old city of Ghazna and the new city of Lahore. During the Arab period, Bust was one of the two main cities in the province of Sistan. In the eleventh and twelfth centuries, the Ghaznavids made it their winter capital and also used it as a hunting resort. The ancient city is marked by a high citadel (*arg*), what is now known as Qalᶜa-i Bist. On its top there was a stepped well (like an Indian *bāolī*) with a spiral staircase going down to the water level 40 m deep. Three tiers of four circular chambers were provided for shade and shelter. At the foot of the citadel mound, ruined walls reveal the existence of what were bazaars, palaces, baths, mosques, etc. The approach to the citadel is through a magnificently decorated arch built in the eleventh century.

Outside the citadel and the commercial city, the nobles' palaces and villas spread out to the north along the banks of the Helmand river from Bust to Girishk. Here also were the royal court and military barracks and cantonments. Hence this area came to be known as Lashkar Gah (Army Camp), but more popularly as Lashkar-i Bazar. Three important palaces were built here on a bluff overlooking the Helmand river, the southern one being the largest and most elegant. In plan, the palace has a central court with four *aiwāns*. The northern one leads into a spacious rectangular audience hall, spanned by columns and decorated with frescoes and sculptured stuccoes. In the centre of the hall there is a rose-petalled water basin, fed by a canal. At the south-east corner, a small mosque stands opposite the audience hall. Towards the east lay a large garden with a central pavilion. The design of Lashkar-i Bazar introduces many architectural features that are borrowed from the Persian tradition.

The city of Ghazna presents a second example of the Ghaznavid metropolitan city, replanned to meet the empire's needs on the foundations of an earlier Saffarid town, which in turn had been rebuilt on an earlier, pre-Islamic site. The old city was marked by a prominent citadel, which was reconstructed several times, with mud-brick walls and semicircular bastions. At the foot of the citadel there extended the commercial and industrial quarters. Far to the south stand the two minarets, one built by Masᶜūd III (1099–1115) and the other by Sultan Bahrām Shāh (1117–?1157). The minarets follow the style of the one at Yarkurgan, in so far as their face is varied with fluting and further

decorated in brick design intermixed with epigraphic friezes and floral and geometric patterns. Although the minarets now have three zones and are crowned by a cupola, they do not have balconies and, whatever ruins lie around them, they appear to be associated with mosques which have not so far been traced.

The most important remains are those of a palace, probably built by Masᶜūd III. It consists of a large open rectangular court paved with marble, with *aiwāns* on four sides. On the northern side is the entrance vestibule and on the south is a throne room, which must have been decorated with paintings, stucco and terracotta motifs. On the east and west, there are smaller rooms on either side of the *aiwāns*, and at the north-west corner there is a hypostyle mosque. The lavish ornamentation, with frescoes and marble flooring, immediately distinguishes the palace from others of its kind and reflects the royal taste and metropolitan nature of the city. In general design, the Persian tradition is apparent, although the decorative motifs reflect Central Asian taste as known in Transoxania. Similar influences may be noted in the overall pattern of city planning, which is comparable with other cities in Central Asia which show the tripartite division of *arg*, *shahristān* and *rabad* (see above, p. 508).

The Ghaznavids carried the Central Asian architectural style to the eastern part of their empire. In Bukhara, Merv and other places on the left bank of the Oxus, from Charjuy to Sarakhs, there are single-domed square tombs of brick with cut-brick ornamentation on them. In the same fashion, four brick-built tombs survive at Mahra Sharif in the Dera Ismaᶜil Khan district of the North-West Frontier Province, also of single-domed square type. Two of them have round towers at the four corners. Of the two without towers, one shows a high drum below the dome, and its interior has a series of arched panels at the level of the transition zone, while the second has two of its three entrances blocked up to floor level. All of them show the same type of brick-design ornamentation as in Central Asia, and, in addition, they are decorated with glazed tiles, probably the earliest used in South Asia. Such tiles, however, have been found in the excavations at Ghazna. The tombs are anonymous, but their dates fall within the Ghaznavid period.

A newly excavated mosque of the Ghaznavid period from the vicinity of the hill fortress at Udegram in Swat illustrates the rectangular type of mosque which became common in this region. A marble slab inscription attributes the mosque to Anūshtegin Nawbatī, a governor of the Ghaznavid sultan ᶜAbd al-Rashīd (?1049–52). It is a hypostyle mosque of rectangular plan, built of schist slabs and blocks, and consists of three parts: the oblong prayer hall, a verandah on the east with a square ablution basin in the middle and an additional structure, possibly *hujrās* (cells) on the north. The flat roof rested on square columns, with five running north to south and eight running east to west. Only one square *mihrāb* is placed in the western wall that faces the main entrance on

the east. There is, however, another entrance in the corner of the western wall. The inscription slab shows the lotus motif on the other face.

Several tombs from this period, and from the transition stage to that of the Ghurids, are still in existence in Baluchistan and Panjab. One of them is attributed to Muhammad b. Hārūn al-Numayrī, a governor reportedly appointed by the Umayyad caliph al-Walīd b. ᶜAbd al-Malik. Standing at Bela in the midst of a vast graveyard, it is a single-domed square tomb with an arched entrance on the east and south and a *mihrāb* on the west, built of fine red bricks laid with mud mortar. Externally, the walls have a series of rectangular panels in the lower half, and the upper one shows cut-and-moulded brick ornamentation. Internally, the square room is turned into an octagon by simple squinches, which carry the dome.

The second is the so-called tomb of Khālid b. al-Walīd at Kabirwala, 120 km south-east of Multan. Near it is a huge mound known as the *saray*. The square tomb was built on the orders of ᶜAlī Karmakh, governor of Multan in the later twelfth century under Shihāb al-Dīn Muhammad Ghūrī. It stands in the centre of a rectangular fortress, the brick walls of which are strengthened by semicircular bastions. The perimeter wall has a plain brick surface, except for a frieze of dentil at a height of 24 m. On the west is a *mihrāb* in the thickness of this wall, presenting an elaborate arched recess, which is faced with cut-brick panels. A double frame also running on the sides has Qur'anic verses in floriated Kufic. The half-dome of the highly ornate *mihrāb* also shows different cut-brick designs and verses. The main square chamber of the tomb has an opening on all four sides, leading into vaulted galleries and two rectangular halls on east and west. A staircase in the south-east corner leads to the roof of the tomb, which is covered by a dome. The transition phase inside the tomb shows corner corbelled pendentives, above which is a series of arched panels. The interior of the tomb also shows cut-brick ornamentation.

The third tomb stands in the middle of a graveyard in the village of Jalaran, about 30 km from Muzaffargarh (Fig. 57). It is attributed to Shaykh Sadan Shahīd, and a recent inscription dates it to 1275, but the single-domed square tomb is similar to the one described above and has trefoil, arched openings on all four sides. The outer face is decorated with panels. The square of the interior is converted into an octagon at the zone of transition by means of arched squinches with projecting brick pendentives. The exterior of the tomb is superbly decorated with cut brick.

The fourth tomb, at Adam Wahan near Bahawalpur, is attributed to Shāh Gardīz, a saint of unknown origin. It is also square in plan but has one entrance by the side of which is a staircase leading to the roof. It is entirely built of mud-brick, with outer and inner facings of burnt brick. The elevation shows three stages of construction. The top of the interior square hall, which has three arched niches on three sides, is sealed with a wooden course which takes the squinches and turns the upper story into an octagon. A second wooden beam



FIG. 57. Muzaffargarh. Tomb attributed to Shaykh Sadan Shahīd.
(Photo: Courtesy of A. H. Dani.)

course on the top bears a second series of squinches that convert the room into sixteen sides, on which sits the high dome. The base of the dome is decorated with glazed tiles in blue and white within an arched frame. Externally, the tomb presents a three-tier elevation and thus becomes a precursor of staged tomb constructions in the Multani style of architecture.

Of secular Ghaznavid buildings, nothing survives at their north-west Indian provincial capital of Lahore, but there is little doubt that they continued to use the older high citadel area that is buried beneath the later Mughal fortress-palace. Below the citadel extended the commercial and industrial sector of the *shahristān*. To the north of the citadel, along the left bank of the Ravi river, lay the old *rabad*, identified by the ruins of an old *ᶜīdgāh* (open prayer ground). It is in the *shahristān* that the tomb of Qutb al-Dīn Aybak was later built, and not far from this stands the *khānaqāh* of ᶜAlī Hujwirī, popularly called Dātā Sāhib.

One great change in the urban setting of the Ghaznavid period from that of the pre-Muslim location of hill forts and fortifications was the new layout

of the cities in the plains, and the new military and trade routes connecting them with Ghazna and other urban centres of Afghanistan and Central Asia – a new land-route connection established by the conquests of the sultans and the penetration into the steppe interior by Central Asian Sufi saints. Both these activities influenced the nature of urban development and the type of architectural forms, such as the tombs, which we find in the period.

The Ghurids

The next historical stage is marked by the role of the Ghurid sultan, Shihāb al-Dīn or Mu^{c}izz al-Dīn Muhammad. Starting from his capital city of Firuzkuh in Ghur, he introduced the new style of architecture borrowed from the Seljuqs and implanted in the capital city of Delhi, founded on the site of an older Hindu capital of the Tomara rulers, called Qal^{c}a-i Ra'i Pithaura, at Vishnupadagiri, presently called Mihrauli. The site of Firuzkuh is not identified for certain, but may be marked by the minaret at Jam in the valley of the Hari Rud (see Fig. 12 above), which was built by Ghiyāth al-Dīn Muhammad b. Sām. The minaret displays unusual features, tapering like the minar at Kunya-Urgench, but it is octagonal in the first stage and becomes round in the two successive stages, with a six-arched circular arcade crowning the top. Each stage is topped by projecting corbelled balconies resting on stalactites. Each face of the first stage has elaborate ornamentation in moulded, buff-coloured brick relief, all contained within eight vertical panels. The upper portion contains an epigraphic band. Below the first balcony is a Kufic inscription in blue giving the name of the builder. Inside the minaret a double spiral staircase leads up to the first balcony, probably suggesting that one could ascend to this height and, if necessary, give the call to prayer. Unfortunately, the remains of a possibly adjacent mosque have not yet been traced.

The Delhi Sultans

The Slave Kings and the Khaljīs

With the transition from Firuzkuh to Delhi, the setting is entirely different. The material changes from brick to stone. In India, the stonemasons had a long architectural tradition of working in different techniques for covering the space by means of corbelling and beautifying the surface with figural and floral motifs. The incoming commanders of the Ghurids created a new fortress city by integrating the older town with a new city. The fortification wall of stone masonry has been traced, but little is known of the living quarters. The name Delhi is traced to its original Dhillika, as mentioned in a Hindi inscription of

the time of Muhammad b. Tughluq (1325–51). An iron pillar inscription of the time of the Imperial Guptas identifies the actual spot where the later Quwwat al-Islam mosque was built out of the spoils of 27 temples. The new workmanship is seen in the tomb of Iltutmish (d. 1236), in the ᶜAla'i Darwaza, and in the nearby *madrasa* where later ᶜAlā' al-Dīn Khaljī (d. 1316) is said to have been buried, with the tombs of Sultān Ghārī and Ghiyāth al-Dīn Balban. The architectural development may be traced through religious buildings, such as mosques, tombs, *madrasas* and *dargāhs* (saints' tombs) which have survived, whereas the secular buildings are in ruins or have disappeared.

This destruction was partly due to the shifting of the residential palaces and seats of government by different kings and dynasties. As noted above, the original fortified city, generally called Lalkot, was built over the fortifications of the Qalᶜa-i Ra'i Pithaura. In the time of Sultan Kay Qubād (1287–90), the palaces and gardens of Dar al-Aman were built at Kilokhari on the bank of the Yamuna river. The Khaljī rulers built the new fortress at Siri and also the Hazar Sutun palace. The Tughluq ruler Ghiyāth al-Dīn (1320–5) built the fortress of Tughluqabad and other forts, including his own fortified mausoleum. His son Muhammad b. Tughluq (1325–51) built the city of Jahanpanah between Siri and Tughluqabad in order to protect the people from the raids of the Rajput Mewātīs. Fīrūz Shāh Tughluq (1351–87) built Kotla Firuz Shah at Firuzabad. This shift of residence reflected a change in the course of the Yamuna.

The first Islamic building of importance in Delhi is the Quwwat al-Islam mosque, which was erected in 1191–2 by the Ghurid amir Qutb al-Dīn Aybak (Fig. 58). In its construction and later additions, the stages of architectural evolution at Delhi are clearly marked. Four stages of development are visible.



FIG. 58. Delhi. Quwwat al-Islam mosque.
(Photo: Courtesy of A. H. Dani.)

Whether the mosque stands on an older temple platform is not recorded, although the inscription speaks of the temple spoils out of which the present mosque was rebuilt. However, the mosque follows a typical traditional design, rectangular in shape with a central open courtyard, a prayer chamber on the west and three-bay deep cloisters on three sides of the court. The prayer chamber has a series of low domes built with a corbelled technique, as is also the dome of the main entrance hall on the east. There are two other gateways on the north and south. The Indian masons, whose hand is clear in the workmanship of the mosque, showed their skill in the re-use of the carved Hindu pillars and stone slabs, some of which still bear figures of Hindu deities that must have been overlooked by the Central Asian Muslim architects who doubtless supervised the work. A *mihrāb* is provided in the western wall, but later a five-arched *maqsūra* (screen) was added to the eastern part of the prayer chamber in the Central Asian style. The screen, which has a central high archway flanked by two smaller archways, follows the Seljuq pattern and is made of originally quarried red sandstone slabs; they do not bear any Hindu figures but have Arabic calligraphy alternating with sinuous lines and floral motifs. In the detailed carving, again, the hand of the Hindu artisans is quite obvious, as is also the case with the ogee shape of the arches built in an overlapping stone technique. This first mosque in Delhi is a hotchpotch creation to meet immediate religious needs, hence it follows the traditional form except that the long side of the rectangular mosque lies east–west.

To Qutb al-Dīn Aybak is attributed another religious building, the Arha'i-Din Ka Jhonpra mosque at Ajmer, built *c.* 1199, probably on the site of a two-and-a-half-day-long fair, as its Hindi name implies, and out of temple spoils. The mosque is, however, better planned and executed than its forebear at Delhi since it is square in shape, with triple colonnaded towers at the four corners; one main stepped entrance is on the east, with another smaller one on the south, leading to a central open courtyard having domed cloisters on three sides with a high pillared façade; a prayer chamber on the west is separated from the court by a seven-arched screen, the central high archway being topped by fluted columns.

This change in the plan of the mosque is also noticeable in the enlargement of the Quwwat al-Islam mosque carried out during the time of Sultan Shams al-Dīn Iltutmish (1211–36). In this enlargement, the rectangular plan has its longer side oriented north–south to meet the requirement of the worshippers, who are required to face towards the *qibla* at Mecca. In this extension again, new polygonal pillars have been used, and the addition of the screen shows a better-designed four-centred pointed archway with Arabic calligraphy and floral designs worked in finer hands.

The second extension was made in the time of ᶜAlā' al-Dīn Khaljī (1296–1316), in which the rectangular plan follows the alignment of the last mosque. The new mosque has two entrances on the east and one each on the north and

south. The southern entrance, known as the ᶜAla'i Darwaza, is a unique addition of its type, heavily dependent for its technique of dome construction, as well as for its external panel decoration, on the tombs near Kerki in present-day Turkmenistan. The gateway is a building in itself, presenting a single-domed square structure, with its dome resting on a series of pendentives and squinches at the corners, transforming the square room into an octagon and then into 16 sides. It is, however, the outer face with its multi-cusped arched entrance within a frame that is most enchanting, as it is set within double-arched niches one above the other on either flank, the use of marble enhancing the beauty of the gateway.

Another important monument attached to the mosque is the Qutb Minar, apparently built with the same motivation as the minarets of Ghazna and Firuzkuh, but it is more elegant and is the tallest of the three, with a height of 72.50 m (Fig. 59). In design it follows the next evolutionary stage, comparable with the minaret of Khwāja Siyāh Pūsh (*c.* 1150) in Afghanistan. At present, it is five storeys in height, each storey marked by a projecting balcony resting on corbelled stalactites. The minaret is tapering, like the one at Jam, and is circular in plan, with its lowest storey varied by alternate circular and angular flutes, the second having only circular flutes, the third having angular flutes and the



FIG. 59. Delhi. Qutb Minar. (Photo: Courtesy of A. H. Dani.)

remainder with no flutes at all. Conceptually, the fluted circular plan of the minaret (*minār*) cannot be compared with the offset projections at the exterior of square Hindu temples. The entire outer surface pulsates with floral ornamentation and Arabic calligraphy. Inside, there is a spiral staircase right up to the top. Although the minaret was completed in the time of Iltutmish, it was later repaired and restored in the time of Fīrūz Shāh Tughluq and then of Sikandar Lōdī (1459–1517), when the two upper storeys introduced marble into the building. A second minaret, larger and more ambitious, in the same mosque compound was begun by ᶜAlā' al-Dīn Khaljī, but remains unfinished.

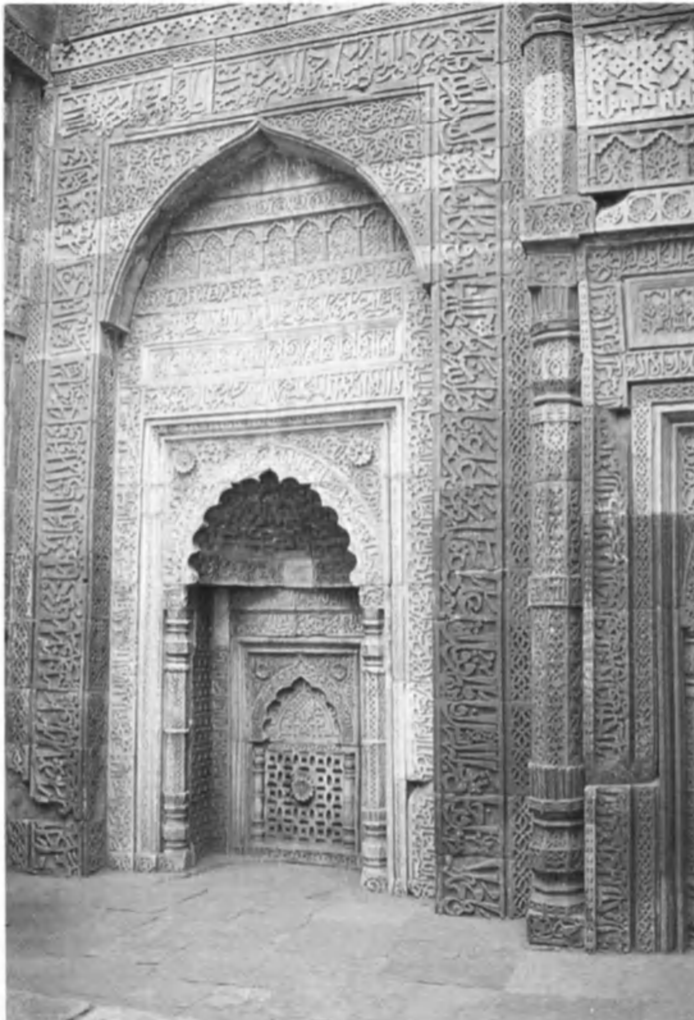


FIG. 60. Delhi. Tomb of Iltutmish.
(Photo: Courtesy of A. H. Dani.)

In Delhi, two other important buildings date from the time of Iltutmish: one is the tomb of Sultān Ghārī, and the other is Iltutmish's tomb near the mosque. Sultān Ghārī's tomb lies underground in the centre of a court of the square mosque built in marble, but its low-dome construction of the *mihrāb* shows the same technique of corbelling. The tomb of Iltutmish is of a different kind. It is square in plan and sits on a high podium with entrance doorways on three sides. The exterior is plain except for four rows of horizontal lining, but the interior is highly ornate, particularly the *mihrāb* on the western side, which is flanked by small decorated pillars and covered with Arabic calligraphy (Fig. 60). An attempt has been made to prepare the base for the dome by the placement of cross lintels at the corners above pendentives, thus reducing the square of the room into an octagon. But the sheer size of the room was such that no dome appears to have been built. However, a single-domed square type of tomb, as known in Bukhara, was the model for this creation by the Indian masons. On the other hand, this type of tomb with a true dome over the square building was achieved in the case of the mausoleum of Balban erected *c.* 1280. Four archways, one on each side, also show the technique of the use of voussoirs, suggesting that the craftsmen who built this tomb were master-workers from the west. From this time onwards, there is a change in the technique of construction, as has been noted in the case of ʿAla'i Darwaza (Fig. 61).



FIG. 61. Delhi. ʿAla'i Darwaza.
(Photo: Courtesy of A. H. Dani.)

The Tughluqs

The next change in the architectural style in Delhi comes from the time of the Tughluqs, who were Qarawna Turks and hence bore a distant relationship to the Turco-Mongol Qarawna amirs of eastern and northern Afghanistan. It is at this time that architectural influences from Khwarazm are visible in the Tughluq buildings at Delhi, as well as the contemporary Multani style of architecture. The ponderous fortified structure at Tughluqabad introduces a military style with sloping walls and bastions that dominate the character of Tughluq monuments.

The ground plan of Tughluqabad is irregular in outline, since it was built on a rocky outcrop with a massive stone wall, topped by battlemented parapets and pierced by as many as 52 gateways, further strengthened by circular bastions, sometimes in 2 storeys. The interior was subdivided into 2 parts, the city area and the palace zone containing the royal residences, the ladies' quarters and the halls of audience. There is also a long underground corridor. But most important are the outposts; the nearest is a fortified pentagon, entered by an elaborate arched entrance which is approached by a causeway. Within is the grand mausoleum of Ghiyāth al-Dīn Tughluq, a single-domed square tomb which has, however, sloping walls and panel decoration in white marble, as seen in the tombs at Kunya-Urgench. The difference is only in the presence of a dome, here topped by a finial in contrast to the pyramidal cover used in Khwarazm. The same military character of architecture is seen in the massive construction of the walls of Jahanpanah, of unusual thickness. Within it the palace of Hazar Sutun was built, part of which has survived in a building now called Vijaya-Mandal.

In contrast to these buildings are the numerous constructions by Fīrūz Shāh Tughluq, the most important of which is Kotla Fīrūz Shāh, a series of mosques, tombs and *madrasas* at Hawz-i Khass. The Kotla, which is actually a palace-fortress with all the amenities of a royal residence, is in clear contrast to the fortress of Tughluqabad. The interior arrangements of a royal palace, audience hall, gardens, Friday mosque and other public buildings, all overlooking the Yamuna river, give a foretaste of the future fortress-palaces to be built by the Mughals. One peculiar building is a terraced pyramidal structure, on top of which stands the Ashokan pillar. In all these buildings, the Fīrūzī character is visible in the plastered walls and in the use of arch-and-beam for the entrances, together with multiple square or octagonal stone pillars to support the domed cover on the roof. This new feature is most apparent in the planning of the multi-domed pillared mosques, such as the Khirki Masjid or Begampura mosque, which is clearly derived from the old multi-domed mosque seen at Khiva, the later capital of Khwarazm. Similarly, the *madrasa* of Fīrūz Shāh at Hawz-i Khass, composed of a pillared hall flanked by a domed square structure and fronted by a similar domed structure, recalls the type of *madrasa* seen

in the old city of Khiva. Thus the Tughluq style of architecture in Delhi is a true reflection of the troubled times caused by the Mongol invasions, as a result of which it is possible that master craftsmen from Khwarazm found refuge in India and brought about this new architectural style.

Provincial styles: Panjab, Sind and Kashmir

It seems that such craftsmen were also responsible for perfecting the Multani school of architecture and for the type of forts, such as at Dipalpur in Panjab, that initiated a new style of military architecture with ponderous sloping walls topped by battlemented parapets and further strengthened by circular bastions. The three-tier tombs of Bahā' al-Dīn Zakariyyā and Shāh Rukn-i ʿĀlam in Multan (Fig. 62) reflect the magnificent taste of the Tughluqs as created by the master-craftsmen of the time. They advanced the local style of architecture to a new stage, in which the influence from Central Asian tombs, such as that of Sultan Sanjar at Merv, is felt to the greatest extent. In these tall monuments,



FIG. 62. Multan. Tomb of Shāh Rukn-i ʿĀlam.
(Photo: Courtesy of A. H. Dani.)



FIG. 63. Thatta. Hexagonal pavilion tomb.
(Photo: Courtesy of A. H. Dani.)

with their semicircular domes sitting on high drums, we discern the Khwarazmian features, together with glittering tiles and other surface ornamentation.

In contrast to the Multani style, we have the Thatta school of architecture in Sind, where local influences are seen in the pillared pavilions and *madrasa* pavilion of Shaykh ᶜĪsā Langotī, built in the early fourteenth century. Hexagonal and octagonal pavilions were erected, using the corbelled technique for building domed tombs, in which members of the local nobility or kings were buried (Fig. 63). There are several other tomb enclosures of stone, showing profuse carved ornamentation. The most highly ornate example is the tomb of the Jām Nizām al-Dīn (1460–1508), which is a square building with all necessary arrangements for bearing the true dome; yet it seems that the local craftsmen were not able to construct one. In the ornamentation of the western wall, both inside and out, the hand of the Hindu craftsmen is clear. Here the door frames, together with the door jambs and the intricate carving, show borrowings from Hindu temple ornamentation. In fact, the back of the *mihrāb* incorporates the Hindu temple spire in its formation (Figs. 64 and 65). The style here is typical of Sind, one that prevailed until the new wave of migration by the Central Asian Turkish Arghūns and Tarkhāns in the sixteenth and seventeenth centuries.

Another provincial school of architecture is seen in Kashmir and the present northern areas of Pakistan, where tombs, mosques and other secular buildings use wood as the material for construction, such as wooden logs for making walls, doors and windows, and even for covering the roof. A typical example is the mosque of Shāh Hamadān in Srinagar, a square building with a pyramidal roof crowned by a tall steeple – a feature of the Kashmiri style of construction. The same style was copied in Baltistan, Gilgit and Hunza. The Chakchan mosque at Khaplu, attributed to Sayyid ʿAlī Hamadānī, a noted local saint of the fifteenth century, is a typical example of a rectangular wooden structure, but is crowned by a similar steeple on a lantern (Fig. 66). The same style is seen in the case of *dargāhs*, as noted in the example of the *khānaqāh* of Mīr Yahyā at Shigar in Baltistan, with its pyramidal roof and high finial. The wide distribution of this wooden style is typical of the western Himalayan regions.

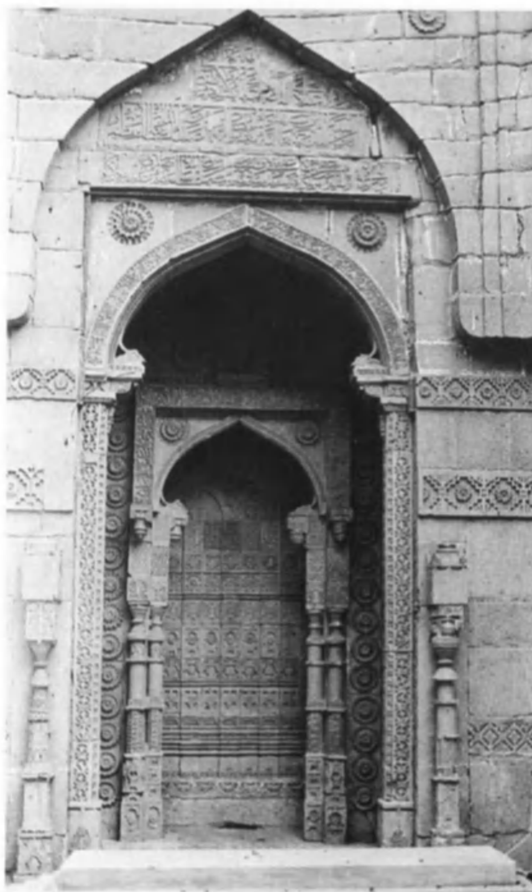


FIG. 64. Thatta. *Mihrāb* of the tomb of the Jām Nizām al-Dīn. (Photo: Courtesy of A. H. Dani.)

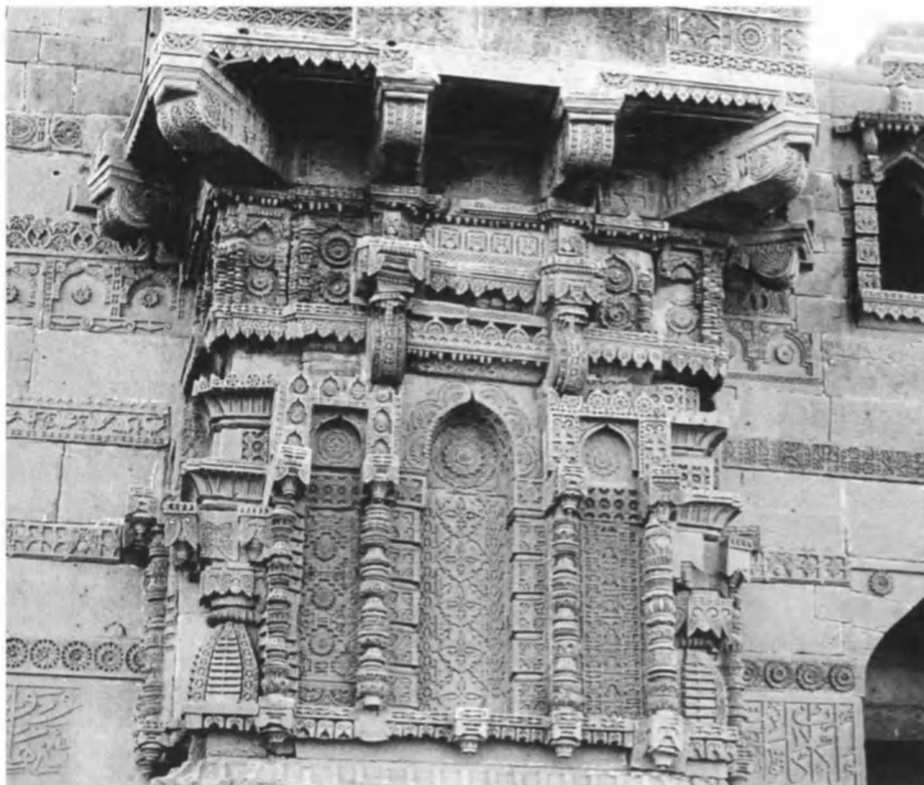


FIG. 65. Thatta. Back of the tomb of the Jām Nizām al-Dīn.
(Photo: Courtesy of A. H. Dani.)



FIG. 66. Khaplu. Chakchan mosque attributed to Sayyid ʿAlī Hamadānī.
(Photo: Courtesy of A. H. Dani.)

Part Three

Eastern Central Asia

(Liu Yingsheng)

The region of Central Asia lying to the east of Transoxania and Khwarazm, comprising Semirechye and the lands along the upper Ili river; Xinjiang, with its oasis towns along the northern and southern rims of the Taklamakan desert; and the great expanse of the Mongolian steppelands, deserts and mountains, all experienced many movements of peoples and tribes and many changes in military and political domination during the period in question (these are described in Volume IV, Part One, Chapters 9, 11, 12, 13 and 16). Despite the ravages of war and the encroachments of nomadic groups, urban life nevertheless managed to survive, and at times flourish, in the region, especially at such favoured spots as the oases and the river valleys running down from the Pamir, T'ien Shan and Altai mountains.

The Turfan region

The most prosperous oasis region of eastern Central Asia was Turfan, where agriculture was well developed. It was also situated on the route to inland China via the northern rim of the Tarim basin, and hence has always been a meeting-place for influences from east and west. The population here was denser than in other parts of eastern Central Asia, with urbanization developed since ancient times. In the Northern Wei period (386–534), there were eight towns in Turfan, but at the beginning of the seventh century the number of towns apparently increased, the most important of them being Lukchun, Kocho, Turfan, Yar Khoto and Toqsan.

Lukchun

Lukchun is mentioned in Chinese sources for the Eastern Han period (25–220). At the beginning of the fifteenth century, an envoy of the Ming government, Chen Cheng, passed through here several times. According to his description, the city wall of Lukchun was rectangular in shape and about 1 or 1.5 km long. In the area around the town there were gardens and fields and running water. The site of the ancient Lukchun town still exists; it is rectangular in shape, about 1,000 m from east to west, and 400 m from north to south. The original height of the city wall, built with *pisé*, must have been 12 m, with the width at the top about 3 m, and at the bottom about 5 m.



FIG. 67. Kocho. General view of the site.
(Photo: Courtesy of Liu Yingsheng.)

KOCHO

Kocho was known from the period of the Northern Dynasties. From the Han until the T'ang period, most of the inhabitants of Kocho were Chinese from inland China transplanted there. There were also Manichaean temples. At the beginning of the fifteenth century, when Chen Cheng passed through, he noted that Kocho (which used to have a large population) was no longer prosperous and that the Buddhist temples were in ruins. Under Turkish influence, Kocho was also called Kara Kocho. It is situated in the Idiqut Shahri of the Turfan basin. The outer city wall was built of *pisé* in the T'ang period and it was more than 5 km long and rectangular in shape; its original height must have been 12 m and it was 6–7 m thick. A defending trench surrounded the city wall. The whole site measures 2,200,000 km^2 (Fig. 67).

TURFAN

Turfan first appears as such in Chinese sources in the description of the fourth year of the Yon Le period (1406) of the *Ming Shi Lu* [The Official Daily Record of the Ming Government], and this name also appears in a Khotanese Saka manuscript in the Stael-Holstein Collection. Since An Le was its Chinese name, Turfan must have been the local name for the town. According to Chen Cheng's description, at the beginning of the fifteenth century the city wall was 0.5–1 km long. The Ming envoy found many people and houses there, and also large numbers of Buddhist temples. Shortly afterwards, in 1420, when Ghiyāth al-Dīn Naqqāsh passed through it, he also found beautiful Buddhist temples.



FIG. 68. Yar Khoto. Northern part of the site. (Photo: Courtesy of Liu Yingsheng.)

YAR KHOTO

Yar Khoto (in Chinese, Jao He) had existed before the time of the Han dynasty. But when Chen Cheng came there, he found the area of the town to be no larger than 1 km^2, with only some 100 families, though there were many ancient temples. Some ancient inscriptions still existed on these buildings, but the town was almost abandoned at that time. Yar Khoto was built on an earth mound between two valleys (Fig. 68). The area covered by houses was 220,000 m^2. The main street, running north–south, is 350 m long and 10 m wide; excavated in the earth, its surface is lower than the level of the houses along both sides. In the eastern part of the town there is another main street, about 300 m long but less than 10 m wide, with an east–west street connecting these two parallel main axes. Along the two sides of the main streets are many smaller lanes; 90 per cent of the houses in the town were built in the yards along the street, surrounded by 6–7 m-high walls. The gates of the yards usually faced the lane rather than the street. Domestic houses were built of mud, obtained by digging out the courtyard of the house and using this for the walls. Then cave dwellings and storerooms were dug into the surfaces of the wall. Wells in the yards could be as deep as 40 m.

TOQSAN

Toqsan (in the period from the sixth to the seventh century, called Du Jin by the Chinese) was situated at the western end of Turfan. It was also shown on the map of the *Jing Shi Da Dian* of the Yüan period and mentioned in the appendix on the North-Eastern Regions in the *Description of Geography of the Yüan Shi* [The History of the Yüan Dynasty]. According to Chen Cheng's travel narrative, more than 25 km westwards from Yar Khoto there was a small town called Toqsan, while in a geographic work of the later Ming period, the *Xi Yu Tu Di Ren Wu Luk*, it is stated that north of Su Bash (Head of Water), there was a small town called Guang Zhen. This is apparently a mistake for 'Tu Zhen', i.e. Toqsan. In early times, there were several other small towns in the Turfan basin, such as Yan Ze, etc.

Architecture of the towns of the Turfan region

The basic soil of the Turfan area is clay. The sloping topography created by the waters coming down from the T'ien Shan mountains is suitable for cave dwellings. These were built not because of poverty, but because of their suitability for the intensely hot summers and cold winters of Turfan. The caves were not only used as dwellings but also as temples, and ruins outside them show that storage buildings were associated with them.

The main architectural material for houses was clay, with sun-dried bricks usually measuring around 46 × 23 × 14 cm. The roofs of richer people's houses were covered with stems of plants, on which tiles and clay were placed, and on the surface of the ceiling a thin covering of clay was smeared. The houses of poor people were usually built of clay mixed with short-cut straws.

As mentioned above, all the towns of the Turfan area had city walls, and those of Kocho had battlements. The base of the city walls was so wide that people even built cave dwellings in them. On the surface of surviving walls, small niches used for lights or lanterns can sometimes still be seen. The gates of the city walls were very high and had two leaves, normally opening to the outside. On the top of the walls, remains of buildings can be found, including vestiges of watch-towers, etc.

The towns of the eastern end of the Tarim basin

Here, towns like Kashghar and Khotan were ancient centres of urban life and culture. Kashghar is situated on a river running down from the region where the southern T'ien Shan merges into the Pamir, with the possibility of routes over the mountains and passes into northern India southwards and into

Transoxania westwards. Khotan lies on the Khotan river running down from the Kunlun mountains. Kashghar appears in the Chinese *T'ang-shu* [Records of the T'ang Dynasty] as K'iu-cha, while Khotan appears from Han times onwards as Yu-t'ien. In the period of the Mongol conquests in particular, Kashghar was a key point for traffic between the Mongol heartland and northern China and the Mongol Khanates of Western Asia, and Marco Polo (later thirteenth century) describes its flourishing crafts and industry and its lively transit trade. Both towns have today developed urban identities which do not allow the past to be easily discerned, but the numerous remains of Buddhist buildings in the vicinities of Kashghar and Khotan, as discovered and described by Sir Aurel Stein in the early part of the twentieth century, testify to the ancient origins of town life there.

The region north of the T'ien Shan mountains

This area is mainly steppeland and mountain pasture. East of it was Uighur territory, north of it was the territory of the Naiman, west of it were the middle reaches of the Ili river, and to the south was the T'ien Shan. In the more favoured, lower regions, urban settlements developed from ancient times.

BESHBALǏK

Beshbalǐk (Turkish, Five Towns) was also called Bei Ting by the Chinese, meaning 'Northern Court'. The name Beshbalǐk first appears in the description of the events of 713 given in the ancient Turkish Kül Tegin inscription. The lexicographer Mahmūd al-Kāshgharī described it as one of the largest of the five towns of the Uighurs. After the fall of the Uighur Kaghanate of Mongolia in 840, some of the Uighurs fled to the eastern region of the T'ien Shan, and these were named the Kocho Uighurs by the Chinese; Beshbalǐk was the summer residence of the Uighur Khans, and the political centre of the Kocho Uighurs. In the early thirteenth century, the Idiqut of the Uighurs submitted to Chinggis Khan. Beshbalǐk became a part of the Mongol empire controlled from the capital Karakorum, but still ruled by the Idiqut. At the beginning of the fourteenth century, it finally became a part of the Chaghatay Khanate, but its political importance was apparently reduced, and towards the end of the fifteenth century, Beshbalǐk was gradually abandoned.

At the end of the tenth century, Wang Yande, the envoy of the Northern Song dynasty, mentions in his record that within the town were the Gao Tai temple and the Ying Yun Tai Ning temple and that the local people were skilled craftsmen, famed for metallurgy and the making of jade ornaments.

The present site of Beshbalǐk is at Jimsar in Xinjiang (Fig. 69). It consisted of five parts: an outer town; the northern gate district of the outer town;

the extended town of the west; the inner town; and a small settlement within the inner town. The outer town had an irregular rectangular shape; the distance between north and south was greater than that between east and west. The wall of the outer town was 4,430 m long and was made of *pisé*. There was a gate, and there were defensive structures on each side of the wall and at the base of the buildings at each corner. This part of the city must have been built in the time of the T'ang dynasty. There was a fortress at the northern city wall, and leading out of it was the northern gate town, the gate of which faced east. This part of the city must also have been built in the T'ang period. From the western wall of the outer town to the gate there was an extended town, measuring 690 m long from north to south and 310 m wide from west to east, and again datable to T'ang times. In the middle of the outer town, a little to the north, stood an inner town, around the four sides of which was a trench; this part must have been built in the Kocho Uighur period. In the eastern part of the inner town, a little to the north, was a small settlement, attributable to the same period.



FIG. 69. Beshbalïk. A temple on the site.
(Photo: Courtesy of Liu Yingsheng.)

BIRBALÏK

This name means 'One Town' in Turkish. In the Kara Khitay and Mongol periods, different Chinese transcriptions of this name appear in Chinese sources, and it also had a Chinese name, Du Shan Cheng (One Hill Town). At the end of the Kara Khitay period, there was a severe famine and all the inhabitants moved elsewhere, abandoning the town. When Chinggis Khan passed by it *en route* for his western campaign, he found it deserted. A Uighur called Kara Ikach Buiruk then settled a group of families there, so that when Chinggis Khan

passed by here again, he found that the town was recovering, the fields were being cultivated and the population was on the increase.

Birbalïk was a key point on the route from Mongolia to Central Asia. Hetum, the king of Armenia, passed through here during his journey to the Mongol court. After the Mongolian civil war of the 1260s, Birbalïk was controlled by representatives of Qubilay Khan, but at the end of his reign, Birbalïk became part of the territory of the Chaghatay Khanate. The site of Birbalïk is the so-called 'Po Cheng Zi', 0.5 km south of Mulei. It is roughly rectangular in shape. The remaining eastern city wall is 340 m long and almost all of the western city wall (540 m in length) still survives. The southern wall was destroyed, but there are remnants of the northern wall (140 m long). There was also a trench around the wall.

PULAD

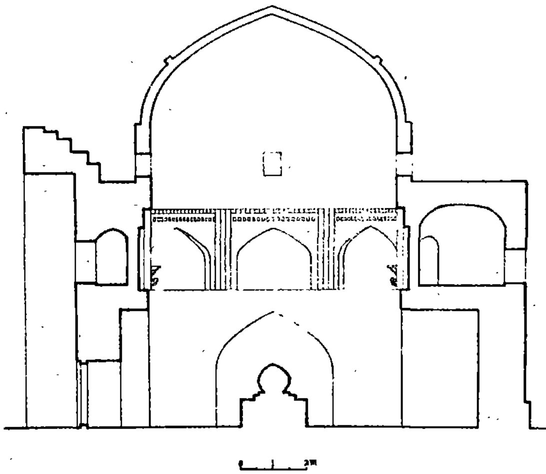
This name means 'Steel' in Persian, and has many different Chinese transcriptions. It was situated on the main route from the Uighur region and Mongolia to Central Asia, and is mentioned by many travellers. In the Mongolian civil war of the 1260s, Pulad was occupied by the troops of Ariq Böke and then after Ariq Böke surrendered, it was controlled by Qubilay Khan's forces. In 1276 a rebellion took place in the garrisons of the Yüan army, and Pulad became a part of the Chaghatay Khanate. In 1313, however, on the eve of the war between the Chaghatay Khanate and the Yüan, the *shihna* (military governor) of Pulad on behalf of the Chaghatayids defected to the Yüan side and sent them information about the coming war.

According to travellers, Pulad had three to five dependent towns, and in the suburbs of Pulad rice and wheat were planted. The houses in the town were made from impacted earth and some windows were decorated with coloured glass. Chinese archaeologists have found the ancient site of a town, which is tentatively identifiable as the site of Pulad.

ALMALÏK

Almalïk, meaning in Turkish 'Place where Apples are Plentiful', first appears in the historical sources for the Kara Khitay period, and it played an important role in Mongol affairs, eventually coming within the Chaghatayid Khanate. Almalïk was an important point on the route between east and west. According to the description of the Chinese traveller Liu Yu, there was abundant running water in the town, and many different fruits were grown there, the best being melons, grapes and pomegranates. By the end of the fifteenth century, however, the town had been abandoned.

The site of Almalïk is at Qurghas in the Ili area between modern Kazakhstan and China. The only remaining building of this period is the *mazār*



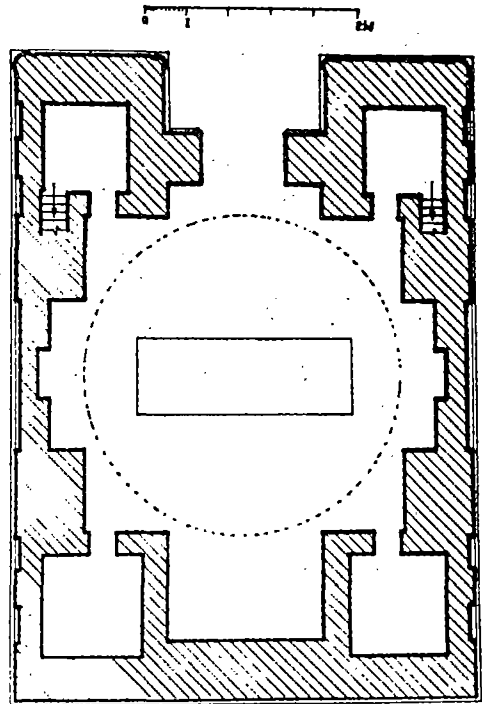


FIG. 70. Almalïk.
Façade of the Great Mazar.
(Drawing: Courtesy of Liu Yingsheng.)

FIG. 71. Almalïk.
Plan of the Great Mazar.
(Drawing: Courtesy of Liu Yingsheng.)

(tomb) of Tughluq Temür, the first ruler there of the Eastern Chaghatay Khanate, who died in 1363. It is situated in the village of Great Mazar, 40 km north-west of Kulja. The tomb is built of bricks, without roof beams and with a dome (Figs. 70 and 71). It is rectangular, standing 7.7 m high, and inside measure 6 × 15.8 m. There are steps in the middle of the room and also a corridor at the four sides of the room, both leading to the top of the tomb; the façade was decorated with purple, white and blue tiles, and at one side are the tombs of Tughluq Temür's father and son (Figs. 72 and 73).

EMIL

Emil was built by the founder of the Kara Khitay dynasty and the remaining forces of the Liao dynasty. At the beginning of the thirteenth century, the surviving troops of the Naiman, defeated by Chinggis Khan, gathered here. After the western campaign of Chinggis Khan, Emil was given to Ögedey, Chinggis' third son, who later gave it to his own son Güyük. In the Mongolian civil war of the 1260s, Emil was occupied by Ariq Böke, but it subsequently reverted to the family of Ögedey. After 1306 it became a part of the Chaghatay Khanate.



FIG. 72. Almalïk. Façade of the Great Mazar. (Photo: Courtesy of Liu Yingsheng.)

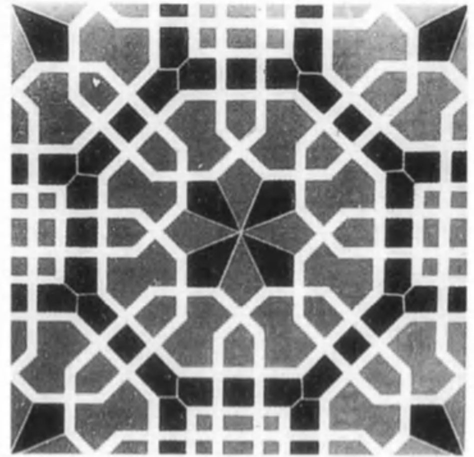


FIG. 73. Almalïk. Detail of the decoration of the Great Mazar. (Photo: Courtesy of Liu Yingsheng.)

The site of ancient Emil is at the centre of the present-day town of Emil, situated on the banks of the Emil river. The ancient site has almost disappeared, the only remaining ruins being a part of the city wall and a platform of *pisé*.

Towns in Mongolia

Towns appeared very early in Mongolia. In the T'ang period, the Uighur Kaghanate built its capital of Ordu Balïk, and in the Liao period, there was a settlement at Kemkemjek; but the most important period for urbanization in this area was the Mongol-Yüan period, when Mongolia was the heartland of a world empire (see Volume IV, Part One, Chapter 12).

KARAKORUM

Karakorum was situated outside the main urban settlement of the Inner Khanghai province of Mongolia, i.e. the town of Khar Khorin. This place had been the summer pasture of the Kerait (Kereyit) tribe and there had been a Buddhist temple in the Liao period. In the time of Chinggis Khan (d. 1227), an *ordu* (military camp) was established near Karakorum, inhabited by his womenfolk. At that time, there were thousands of *gers* (felt tents) and carts. Ögedey ordered the building of a palace called Wan An and of residences of princes and ministers, temples and storehouses on the eastern bank of the Orkhon river.

The project was organized by a Chinese official, Liu Ming, and the Wan An palace was finished the following year.

According to the travel narrative of William of Rubruck, Wan An had three doors on the south side. Inside the palace were two rows of pillars, and at the northern end was the exalted seat of the emperor with two stairways leading up to the seat. On the right-hand side of the emperor were the seats of the princes, and on the left side were the seats of the queens and imperial concubines. Outside the palace, before the middle door, there was a large silver tree, at the foot of which were four silver lions each with a pipe, and all giving forth white mare's milk. Inside the trunk, four pipes led up to the top of the tree; the ends of the pipes were bent downwards, and over each of them was a gilded serpent whose tail twined round the trunk of the tree. These pipes poured out different drinks.

In Rubruck's estimation, Karakorum was as big as Saint-Denis in France. There were two districts in the town, one inhabited by Chinese merchants and craftsmen and the other by Saracens (i.e. Muslims). There were twelve temples belonging to different peoples, two mosques and one Nestorian church. The city wall had four gates. At the east gate, millet and other types of grain were sold; at the west, sheep and goats; at the south, oxen and carts; and at the north, horses. The building of Karakorum continued until Möngke Kaghan's reign (1251–9). In a place 35 km north of Karakorum, a town called Sahurin and the Gegen Kaghan palace were built on the orders of Ögedey (1229–41); and more than 15 km south of Karakorum, Tuzqu town and another palace were also built on his orders.

Excavations have shown that the Wan An palace was situated at the south-western corner of Karakorum and that it had a wall around it about 1 km long. The base walls of the palace are 3 m high, 80 m long and 55 m wide. There were 9 lines of pillars from south to north and 8 lines from east to west, in all, 72 pillars. The central hall measures 2,475 m^2 and was built in Chinese style. The length of the city walls was about 6 km. There was a main street running from east to west and another from south to north, and along these streets were residences of officials, temples, houses and workshops.

CHINQAI

This was the political and economic centre of western Mongolia in the Yüan period, and the only town which was more important than Karakorum. It was built by captured Chinese craftsmen on the orders of Chingay, the great secretary of Chinggis Khan; hence the town was named 'Chinqai Town' after him. Those Chinese artisans built the city walls and storehouses and established military settlements and workshops. Chinqai was near the Altai mountains, and later played an important role in the war with the rebellious princes of the north-west. The soldiers of the Yüan garrison there were mainly Kïpchak Türks.

At the beginning of the fourteenth century, the Yüan court made it the centre of a local administrative unit. The grain produced each year by the military farms amounted to more than 100 tons. The site of Chinqai has not yet been found, but it must be somewhere in the north of the Zun Khairkhan mountains, which are situated in the east of Khovd province of modern Mongolia.

KEMKEMJEK

This was situated in the north-west of the Mongolian plateau, north of the Tangly mountains, where the terrain and climate were suitable for agriculture; urbanization began to develop at least from the Liao period, so that in Kara Khitay times, Kemkemjek was one of the most important places in the country. In the time of Chinggis Khan, Kemkemjek belonged to the wife of Tolui, his fourth son. At that time, the population comprised several thousand families, most of whom were Mongols or (presumably Turkish) Muslims. The Chinese there were mainly craftsmen who had been transferred from inland China at the beginning of the establishment of Mongol rule, and they were forced to work in the state workshops. These Chinese were skilled in metalworking, so that Kemkemjek became an important centre for the production of agricultural tools and weapons, as well as silk. Russian archaeologists have found the site of an ancient town called Den Terek dating back to the thirteenth century, in which the ruins of houses, old weapons and agricultural tools have been found, probably the site of Ilan town in this same region. But with the decline of the Yüan dynasty, Kemkemjek gradually lost its importance.

Conclusion

The accounts of both Chinese and Western travellers during the period of the *pax mongolica* indicate that the mass movements of peoples at that time brought with them an increase in trade and the transmission of cultural influences, with a consequent florescence of the urban centres along the well-travelled routes which lasted into the fourteenth century. However, with the division of the Mongol patrimony into separate, often warring *ulus*, or territorial and political units, the trend towards pastoralization seems to have increased in many regions of Inner Asia, probably accounting for the decline and even disappearance of many of the towns mentioned above by the fifteenth century.

19

MUSIC AND MUSICOLOGY, THEATRE AND DANCE

B. Lawergren, E. Neubauer and M. H. Kadyrov

Part One

MUSIC IN THE BUDDHIST AND PRE-BUDDHIST WORLDS

(B. Lawergren)

There are frequent references to music in Central Asian sources, both in texts and in illustrations. The very abundance shows that it was important but, since no notated music has survived, we cannot know the sounds. All we can do is examine the circumstances and theories of music and analyse the instruments.

Music flourished while two major religious movements swept through Central Asia, and each documented music in its own particular way. Buddhism encouraged visual depictions of sacred and profane life, including musical scenes. Islam prohibited images, but many texts deal with music. In both cases music existed in spite of the sacred tenets. According to the Theravāda doctrine, Buddhist monks were not allowed to attend performances of instrumental music. On the other hand, chanting was allowed and is attested in the first half of the first millennium A.D. in China. Early in this period, too, the Mahāyāna doctrine entered China (see below) and it showed an entirely different attitude towards music. Its holy books describe a Western Paradise filled with music emanating from glorious instruments. In the same vein, Buddhist courts in the Far East sponsored lavish instrumental ensembles and did their best to emulate Paradise. Islam, however, was often dubious about the value of music and some Qur'anic authorities condemned it outright. But Sufis maintained that the effects were determined by the listener's state of mind, and they embraced music for its ability to induce an other-worldly ecstasy. Islamic courts, especially in Iran and Muslim India, felt less bound by religious rules. Thus although instrumental music had little or no part in the rites of either religion, it played a substantial role in the everyday life of people living under both faiths.

Buddhist orchestras

The identity of Buddhist instruments can be ascertained from Chinese usage in the first millennium A.D. Long before Buddhism arrived, probably in the first or second century A.D., China had developed several types of acoustically advanced instruments, such as arrays of precisely tuned bronze bells and stone chimes. Large sets of these clangorous instruments were integrated into ensembles, like the one shown on a relief[1] from Yinan (Shandong province) dated between the second and the third century. The musicians occupy a large area of the foreground together with dancers and acrobats. In the rear are several large drums (played with two sticks), two huge bells (played with a rod suspended from a rope) and four large sounding stones (played with a mallet). The central ensemble sits in three neatly arranged rows. Five small drums are in the front row, each played by one person with a single stick. The next row has one further drum and some wind instruments (four pan-pipes, three flutes and one mouth-organ). The only stringed instrument, a zither, is relegated to the last row which it shares with three additional percussionists (clapper, cymbal?). The lack of stringed instruments is hardly surprising, since they would have had a difficult time competing with the clamorous percussion and shrill wind instruments. The lone zither is probably there because of its venerable status.

Very likely, the picture is only a schematic representation of much larger ensembles. Most sets of bells and chimes were probably less imposing than the 65-bell set belonging to Marquis Yi of Zeng (433 B.C., Hubei province) but, nevertheless, the instruments were extremely heavy and capable of producing a loud sound.

With the introduction of Buddhism, instruments became very light and less loud. Bells, chimes and large drums were banished, and stringed instruments promoted. Whereas the old orchestras had been quite stationary, the new stringed instruments were easily portable with hollow wooden bodies. A typical ensemble on a seventh-century relief[2] shows players sitting neatly on rows of carpets. Counting from the front there is an angular harp, two lutes, a zither, a mouth-organ, a transverse flute, an end-blown pipe, a pan-pipe, an hour-glass drum (beaten with both hands), a pair of cymbals and some small percussion instruments. Harps and lutes take pride of place in Buddhist ensembles. The preference for strings, flutes and small percussion instruments (in that order) is evident on many Sui and T'ang dynasty figurine ensembles and persists on Buddhist monuments from Central Asia. We shall consider these instruments – particularly harps, lutes and hour-glass drums – as being closely associated with Buddhism.

1. Sirén, 1956, Vol. 3, Pls. 3–4; Lawergren, 1996*b*, Fig. 1.
2. Fong, 1987, Fig. 23.

Since nearly all evidence comes from paintings, reliefs and statuettes, it is worth itemizing iconographic subjects that often show musical instruments. The Buddha himself was exposed to music throughout his life, and these episodes are common subjects of Buddhist art. As a youth he listened to the harp, flute and drum played by seductive harem ladies. Just before he attains enlightenment, Mara's daughters try to tempt him with music. Finally, the fully enlightened Buddha is distracted when the harper Pañcaśikha plays for him at the Indraśaila cave. Celestial beings are often shown playing music in solo performances or in ensembles.[3] There are also many portraits of real court ensembles.

Since this study mostly deals with visual representations, it relies on material uncovered and examined by archaeologists and art historians. Their results will be used here, but our ultimate aim goes beyond the image: we wish to know if real instruments served as models for the instruments depicted. If so, did they participate in music-making or were they just symbolic objects? As an example of depicted instruments that probably did not exist (since no examples have been found), let us consider some small objects (less than 15 cm) in Gandhara[4] with a Graeco-Roman iconography. Merchants or soldiers could easily have transported these across vast distances. The context is foreign, and the instruments are never shown in the hands of local people. This situation also pertains with regard to the lyre, an instrument that was characteristic of the Mediterranean region. When we find them represented in northern India, Bactria (the later Tukharistan) and along the Silk Route,[5] we may well doubt that real lyres were present and integrated into musical life. On the other hand, some imaginary situations – like flying *gandharvas* clutching musical instruments – show 'real' instruments. This we know because the same harps, lutes, flutes and drums appear in realistic situations and are mentioned in inventories.

The harp

It is probable that the harp was the most characteristic Buddhist instrument. One *Jātaka* story[6] tells us that the Buddha had been an accomplished harp-player in an earlier life, and some Mahāyāna sutras place harps prominently in the Pure Lands (Paradises). The close relationship between harps and Buddhism is supported by the fact that the instrument declined in China when Buddhism waned after the T'ang dynasty. In Japan real harps were probably

3. For example, in the Dunhuang caves: Chang and Li, 1983, nos. 16, 285, 299, 428.
4. Francfort, 1979, nos. 7, 14.
5. Karomatov et al., 1987, nos. 128–30.
6. Lawergren, 1994, pp. 228 et seq.

never played, but their image was used as a Tantric symbol long after the harp had died out in China.

ARCHED AND ANGULAR HARPS

Arched harps first appeared in Iraq and Iran late in the fourth millennium B.C., and angular harps followed *c.* 1900 B.C. The former consists of a long bent rod, joined smoothly to a hollow soundbox at the lower end. The box is covered by a leather membrane but, because of its fragility, the strings cannot be attached to it directly. Instead, they are tied to a thin wooden rib in contact with the membrane. The other end of each string is tied to a tuning device on the rod (Figs. 1A and 1D). The angular harp differs in the way its rod joins the box. The rod passes through a large hole at the lower end of the box and forms a nearly perpendicular angle with it. Some parts of the arched harp are also found on the angular harp, e.g. the rib and the tuning mechanism (Figs. 1E and 1J). As a rule, the angular harp has more strings (typically 25) than the arched harp (typically fewer than 10).

Over the millennia, angular harps changed little, while they spread far from their place of origin. Greece and Egypt adopted this type of harp (reluctantly) in the latter half of the first millennium B.C. Many of the harps in Athens looked like the Near Eastern type, but it also spawned several unorthodox angular harps (called *trigonon*). After the demise of classical Greece, angular harps migrated into many corners of the Hellenistic world, but it was the old Near Eastern type that travelled rather than the novel Athenian ones. This Near Eastern harp from the Hellenistic period varied little from place to place, and it is difficult to distinguish between representations from the Aegean, Egypt (called *bnt*), Turkey, Iraq, Iran (called *chang*), Khwarazm and Bactria. Whenever details are clearly visible, one sees a sturdy box that progressively widens towards the top. Its straight sides result in a trapezoidal front and side surfaces. Rods have a large diameter, about 6 cm – far more than is required for mechanical stability. Such trapezoidal boxes and bulky rods are found already on extant Egyptian angular harps from the Late Period (seventh–fifth century B.C.).

It was this Near Eastern form of angular harp that Buddhism adopted and brought to the Far East, although major modifications were introduced *c.* 600 (see the light angular harp, below). In the Islamic world – principally in Greater Iran and Turkey – angular harps lasted until the seventeenth century (mostly in the form of lever harps).[7]

7. Meanwhile, in Europe a new type (the pillar or frame harp) emerged during the Carolingian period. It was a drastically modified angular harp. First, a pillar was inserted between the distal ends of the rod and box; this added structural rigidity. Then the rod was bent into a S-shaped curve; this made the strings easier to tune. Finally, the instrument was held upside down with the rod at the top where the strings were plucked; this permitted the (bottom end of the) harp to rest on the ground, a property that eventually led to larger and heavier harps.

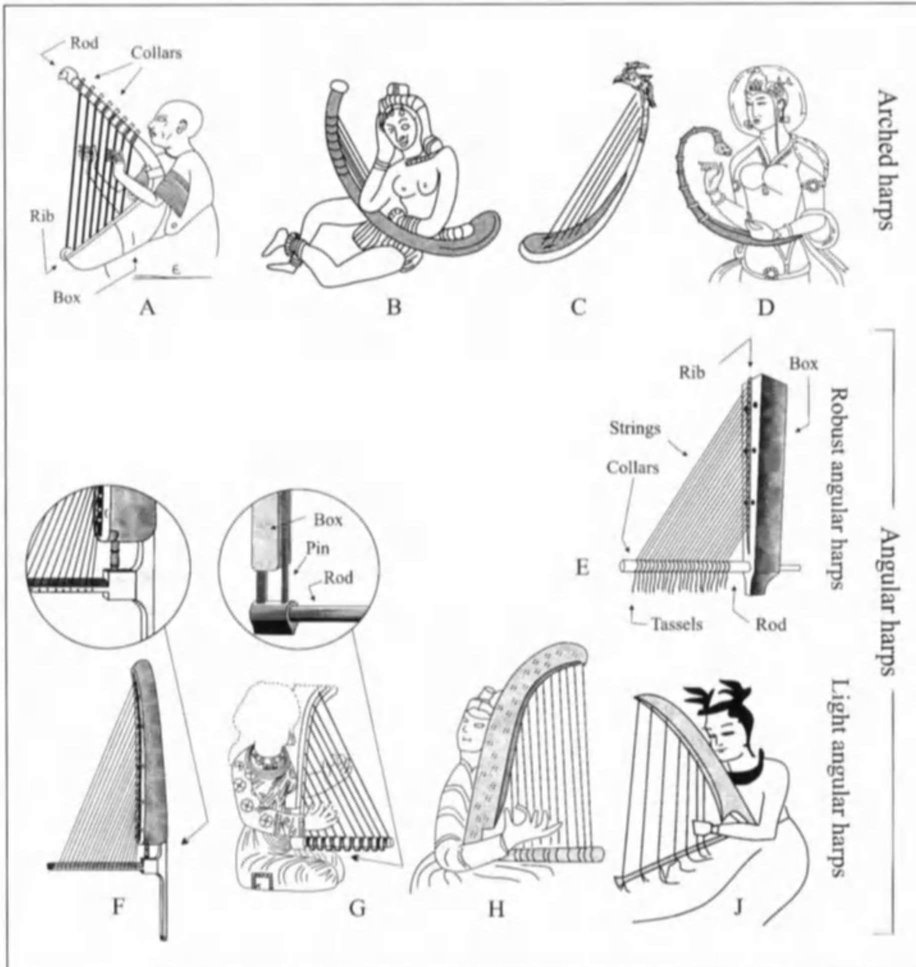


FIG. 1. Arched and angular harps.

A: Egypt (first millennium B.C.).

B: India (Nāgārjunakonda). A sleeping female harpist
(from the second to the third century), after Kaufman, 1981, Fig. 62.

C: China (Dunhuang, cave 327) (from the tenth to the thirteenth century).

D: Sogdia (Panjikent) (eighth century).

E: Egypt (first millennium B.C.).

F: Japan (Shōsōin) (eighth century).

G: Iran (Taq-i Bustan) (*c.* 600).

H: China (Henan) (*c.* 551), after Sachs, 1940, Pl. Xa.

J: China (Dunhuang, cave 285) (*c.* 535–56).

Arched harps present an entirely different historical and geographic picture. Shortly after its birth in the Near East, this harp is found in Egypt where it developed many local variations. After the second millennium B.C. it was rarely shown in the Near East, where angular harps became dominant. But the arched harp was the principal Indian string instrument between the first century B.C. until *c.* A.D. 800 (called *vīnā*). The Indians had an affinity with the arched harp, which, very likely, went far back into history. The inhabitants of the Indus valley civilization (before 1800 B.C.) even had a writing sign in the shape of an arched harp.

THE LEVER HARP: A MODIFIED ANGULAR HARP

A new type of angular harp arose in the sixth century. It gradually gained acceptance and lasted until the time when angular harps, as a whole, disappeared a millennium later. The design had a very slim rod placed below the box, where it pushed against a short pin descending from the box (Figs. 1F and 1G). A mechanical *tour de force*, it enabled very slender parts to withstand great string tension. In effect, the rod acted as a lever, one end of which was attached to the thin tail and the other to the strings. The pin was a fulcrum against which it pivoted. Its elegant design was the opposite of the traditional Near Eastern angular harp, with its thick rod and heavy trapezoidal box.

The first evidence of the lever harp comes from the Iranian site of Taq-i Bustan *c.* 600 and from China some 50 years earlier. The rock carvings at Taq-i Bustan show many harps; the best-preserved examples display the crucial joint between the rod and the box (Fig. 1G).[8] The rod hangs under two narrow vertical parts, one of which descends from the back of the box. The vertical on the front (the fulcrum) is formed by the rib extending below the box. None of the Chinese harps actually shows the pin, but the box has a large indentation just above the rod (Figs. 1H and 1J). Without a pin, the instrument would probably have collapsed. Each harp probably had a pin, but the artists neglected to show it. An extant harp in the Shōsōin Repository (Nara, Japan, eighth century) demonstrates the construction very clearly.[9] Its pin is an intricately turned piece, the ends of which fit snugly into holes in the body and the rod (Fig. 1F).

It is difficult to say whether Iran or China invented the lever harp, since the dates are close. Although there are no Central Asian representations of this harp as early as the Iranian and Chinese dates, it could still be the place of invention. The region is poorly documented and the harp from Pazyryk (Altai region, dated fourth century B.C.)[10] shows that unusual harps existed here. The

8. Fukai et al., 1972, Pl. LIXb.
9. Hayashi et al., 1967, Pls. 93, 111. (The harp was probably imported from China.)
10. Lawergren, 1990, Fig. 10.

details of the Pazyryk harp are quite unlike those on contemporary harps from Iraq and Iran. It had symmetrically rounded ends which were unknown in the Near East, but reappeared over a millennium later on Central Asian harps (Fig. 1G). China is equally likely to have invented the lever harp shown at Taq-i Bustan. Among the instruments shown there are mouth-organs typical of China. Like these, the harps may have been derived from the East.

As noted above, the pin is sometimes not shown, although there is a space for it and mechanical stability demands it. This may have been due to careless drawing, or merely to the smallness and the novelty of the part. Often it is obscured by the player's right arm. Careful inspection reveals such a pin on many Central Asian harps from the Buddhist era. Lever harps are common in illustrated Islamic manuscripts, *c.* 1400–1600. Their rods were usually morticed to the long tail which extended far below the box.[11]

The divergence of Iranian and Indian harps

The first major thrust of Buddhism into Central Asia came during the period of the Kushan empire (first–third century). Before that time a very simple situation existed: angular harps existed only in the west, i.e. a region that included Egypt, the Aegean, Iraq, Iran and Khwarazm (and, presumably, Syria); arched harps were found in India. During the Kushan period, the situation becomes more complex. Representations of angular harps are found in northern India,[12] but it is doubtful if the instrument itself was ever adopted there. A few angular harps are shown in Bactria and actual instruments probably also existed here. Arched harps also reached Bactria (from India), and the region may have been an entry point for both types of harps that were to travel along the Silk Route after the end of the Kushan empire. It was this polarized situation which presented itself to Buddhist travellers along the Silk Route. The usage of different types of harp reveals the strengths of western and Indian musical influences in the vast region between Bactria and China.

The spread of harps from Iran and India

There are over 500 representations of harps in Central Asia during the time of Buddhism. Most sites are on the Silk Route, with its northern branch passing through Dunhuang, Turfan, Kucha, Usrushana, Sogdia, Margiana and Bactria, and its southern branch going through Khotan and Miran. During the first millennium A.D., both angular and arched harps took hold along the Silk Route. Angular harps gradually penetrated from west to east. They were present in

11. Lawergren, 1996*a*.
12. Czuma, 1985, no. 87.

Iran before the first century B.C., and appeared on Sogdian and Bactrian monuments between the first and the third century A.D. We find them in the Turfan region a few centuries later. By the fifth century, they were firmly established in China (where the harp was called *konghou*). On the southern Silk Route they are not shown until the eighth century, but were probably part of the traditional Buddhist culture of Khotan before that time. Arched harps moved north from India and became concentrated on Bactria and Kucha before continuing to the north-east. Each site shows a high degree of preference for one type of harp or the other.

China adopted only the angular harp, although Dunhuang, at the gate to Central Asia, had a few arched-harp stragglers. Kïzïl shows the opposite preference,[13] with three times more arched than angular harps. Some other sites in the Kucha region also went for arched harps. On the other hand, the Turfan region was partial to angular harps but, like nearby Dunhuang, it is not entirely devoid of arched ones. The entire Khotan region opted for angular harps, in spite of its close proximity to regions where the arched harps ruled supreme. Harps reveal complex musical interactions between Central Asia, China, India and the west. We note first that arched harps were not transferred earlier than angular ones, or vice versa. This can be seen in the Kuchean region, where both types were painted during the brief interval of the fourth to the sixth century. In China, both angular and arched harps were painted as late as the thirteenth century. Second, the pictorial context does not in most cases determine the choice of harp. Religious scenes portray both arched and angular harps, as do secular scenes. There is a tendency to put arched harps in scenes from *Jātaka* tales and from the life of the Buddha, but other religious subjects – flying *apsarasas* – use both types of harp at Dunhuang. Paradise ensembles use both angular and arched types, as do secular entertainers.

THE CORRELATION BETWEEN ANGULAR/ARCHED HARPS AND IRANIAN-/INDIAN-INSPIRED ARTISTIC STYLES

The distribution of the usage of different types of harp corresponds to a geographic pattern of Iranian and Indian musical influences. This largely agrees with the spheres of influence mapped by art historians. For example, Parthian art is known to be deeply affected by Graeco-Roman art. We find that Parthian instruments, too, are entirely western (lyres and angular harps) with no trace of Indian harps. The Sasanians continued the trend but also introduced a new design, the lever harp.

Art historians command more extensive material and can draw more detailed analyses than our harp data permit. They see subtle mixtures of stylis-

13. Yao, 1983, p. 244.

tic influences, but few such subtleties can be discerned among harps. Bussagli's statement[14] that Turfan 'oscillated between Iranian and Chinese forms' cannot be supported in relation to the harp, since Iran and China both used the same type of instrument. Our data demonstrate that Kïzïl had a preference for Indian harps, and, indeed, art historians have long recognized an Indian style of painting there, as well as a Sasanian Iranian style.[15]

One artistic style – the Indo-Iranian one – is meaningless when it comes to harps. Harps conform to the style of one region or the other but not to both. It is not clear which harps were painted in the Indo-Iranian style, if any.

The connection between Kuchean and Chinese harps

When the Buddhist pilgrim Hsüan-tsang visited Khotan around 630, he noticed that the inhabitants were unusually fond of music, but his highest accolades were reserved for Kuchean musicians.[16] In the latter half of the first millennium, the Chinese greatly esteemed western music, and that from Kucha was considered the finest. However, in 647–8 the Chinese army destroyed Kucha, slaughtered many of its inhabitants and installed a subservient ruler. Art in the region never recovered, but music may have fared better, for Kuchean ensembles were still prominent at the courts of the T'ang dynasty.

All depictions of harps at Kïzïl come from the period prior to the destruction of Kucha. At that time, arched harps dominated, but this fact conflicts with Chinese information. The *Sui shu* [Dynastic Annals of the Sui] (581–618) attest that Kuchean ensembles at the Chinese court had only harps of the angular type. Moreover, some Chinese terracotta figurines from the same period depict Kuchean orchestras, and only angular harps are shown. In other words, actual practice attested in Chinese records is not in accord with the visual records from Central Asia.

However, nobody can doubt the presence of Indian music at Kucha. A Chinese musician reported that a Kuchean lutenist named Sujiva used seven musical modes, and he called them by Indian names, as the Chinese transliteration makes clear.[17]

14. Bussagli, 1963, p. 96.
15. Howard, 1991, pp. 68–72.
16. Beal, 1969, Vol. I, p. 19; Vol. II, p. 309.
17. Liu, 1969, p. 103, and note 749.

Part Two

MUSIC IN THE ISLAMIC ENVIRONMENT

(E. Neubauer)

The eastern Iranian lands and Transoxania

The countries along the Oxus (Amu Darya), at the western end of the Silk Route, have left impressive testimonies to their musical life in the first centuries A.D. Relics of musical instruments, musical scenes depicted in mural paintings or sculpted in stone, and terracotta figurines of musicians have been discovered by archaeologists in Khwarazm and Sogdia, in the eastern part of Parthia, and in Bactria.[18] When, at the beginning of the eighth century, the borderland between Iran and Turan, between the Persian and the Turkish world, was conquered by Muslim Arabs, the region, thereafter called Khurasan and Transoxania, retained its musical individuality. The Iranian population, the Arab and the growing Turkish minorities, and finally the Mongol occupants, all contributed to the musical life of the area.

When, during the ninth century, Iranian dynasties regained power in Khurasan, music became an integral part of court life;[19] it was even considered 'one of the signs of rule'.[20] The poet Rūdakī (d. *c.* 941), a boon companion of the Samanid Nasr II (914–43), composed songs to his own verses and accompanied himself on the lute (*rūd* or *barbat* in Persian, *'ūd* in Arabic).[21] The same is reported of his poet colleague Farrukhī from Sistan (d. 1038), who served at the court of Mahmūd of Ghazna (998–1030). Several Seljuq rulers were fond of music.[22] A famous lute-player from Khurasan, called Kamāl-i Zamān (Perfection of the Age), performed at the court of Sultan Sanjar (1118–57) in Merv. The female poet and musician Firdaws-i Mutriba from Samarkand was favoured by the Khwarazm Shah 'Alā' al-Dīn Muhammad (1200–20).[23] When, in 1220, Bukhara and Samarkand were captured by Chinggis Khan, she was taken over by the Mongol ruler, who is said to have saved the artists of the towns he seized. He kept an orchestra of some 20 'masterly playing, beautiful' female musicians and favoured Tangut musicians besides his minion, the Mongol *qughur* (fiddle)-player Arghun (or Arghasun).[24] When Bukhara was taken, Chinggis Khan 'sent

18. Karomatov et al., 1987.
19. For pre-Mongol Iran, see Farmer, 1939, pp. 2789 et seq.
20. Narshakhī, 1954.
21. Ibid.
22. See Turan, 1965, pp. 294–300.
23. See Ishaque, 1950, pp. 56–7.
24. For Mongol and Il Khanid Iran, see Neubauer, 1969, pp. 242 et seq.

for the female singers of the town to sing and to dance for him, whilst the Mongols raised their voices to the melodies of their own songs'.

During the rule of the Il Khanids, the main musical activities shifted west and the rulers became accustomed to Irano-Arab urban art and court music. After capturing Baghdad in 1258, the Il Khan Hülegü (d. 1265) saved the life of the eminent musician and writer on music Safi al-Dīn al-Urmawī (d. 1294), as did Timur with the musician and littérateur ᶜAbd al-Qādir al-Marāghī (d. 1435) when he took Baghdad in 1393. Al-Marāghī spent the rest of his life in Samarkand and Herat, where he served Timur's sons and governors and wrote four important books on Irano-Arab art and court music.[25] Through the concentration of artists at the Timurid courts, Samarkand and Herat became the leading musical centres of the Muslim world in the fifteenth century. The local and 'national' styles of Safavid Iran, Ottoman Turkey, Shaybanid Transoxania and Mughal India of the sixteenth century all profited from the heritage of Timurid art and court music.

Arab and Persian writers on music made a clear distinction between the music of central Persia and that of Khurasan (and Transoxania). From the beginning of Islamic rule, the music of Khurasan was considered something special. Musical instruments of the country were sent to an Umayyad caliph in Damascus, and singing girls from Khurasan performed at the courts of the ᶜAbbasids in Baghdad. Bukhara was known for a musical style of its own, including 'amazing songs' about the mythical ruler Siyāwush and traditional dirges transformed into songs of art music.[26] Virtuoso instrumental pieces, called *rawāshīn*, 'which the human voice cannot imitate', were considered characteristic of the local style of Khurasan by the author of the *magnum opus* on musical theory in Islam, al-Fārābī (d. 950), who was of Central Asian Turkish origin.[27] The philosopher Ibn Zayla (d. 1048) knew of both instrumental and vocal *rawāshīn*: the latter were mainly melismatic and not bound to musical metrics. According to Ibn Zayla, the repertoire of Khurasan also contained a song form called *dastān* in which the syllabic structure of the text determined the metric and rhythmic structure of the melody. The Persian term *dastān* was adopted by the Turks on their way westwards and used by them as a literary term to denote the heroic and 'romantic' genre of their epics, which are composed of passages in prose and sung poetry.

Another specific form of Transoxanian vocal music consisted of *dubaytī*s (quatrains) sung to 'heroic' melodies. In the *Qābūs-nāma* [Book for Qābūs] composed in 1082 by Kay Kāwūs b. Iskandar, a Persian petty ruler in the Caspian provinces, musicians are advised to perform these songs for people of the warrior class.[28] Here the character of the melodies and of the audience seems

25. Al-Marāghī, 1366/1987; 1344/1965; 1370/1991.
26. Narshakhī, 1954.
27. Al-Fārābī, 1967, pp. 69, 77; d'Erlanger, 1930, pp. 17, 21.
28. Yūsufī, 1362/1983, p. 236.

to point to a Turkish rather than an Iranian environment. Lullabies in Persian (*lalā'ī*), as well as in the Turkish language (*nenni, ninni*), are alluded to in a satirical poem by Sūzanī (d. 1174), a poet from Samarkand. The song forms of *tarāna* and *ghazal*, mentioned in the *Qābūs-nāma*, are the earliest known vocal forms of Persian court music. They were integrated, together with *qawl* and *firūdāsht*, in the *nawba* (four-part 'suite') of the Irano-Arab court music attested from the thirteenth century onwards. Apart from these, the vocal forms of *pīshraw, naqsh, sawt* and *ʿamal* flourished under the Timurids. They were all described by al-Marāghī and have been recently investigated, based on sixteenth-century Turkish song textbooks, by Owen Wright.[29]

Musical modes

Our knowledge of the early modal system of Khurasan in Islamic times (and of Iran in general) is still limited. The first author to mention three contemporaneous mode names was the philosopher Ibn Sīnā (*c.* 980–1037), who started his career under the last Samanids. Another three names of modes occur in the *Dīwān* of Manūchihrī (written *c.* 1030–40 in Ghazna), and seven more in the *Qābūs-nāma*. We find them later in the thirteenth-century Irano-Arab court music outlined by al-Urmawī in Baghdad.[30] To judge from its terminology, al-Urmawī's 'international' modal system was intended to represent the predominant Arab and Persian local traditions. Besides this mainstream of urban art music, local variants may have existed that only partly corresponded to al-Urmawī's system.

Are there any clues that indicate a specific Khurasanian modal tradition? There is indeed a document that tells us about the music of Nishapur in the early thirteenth century. It is an important Persian treatise written by a certain Muhammad b. Mahmūd b. Muhammad Nīshāpūrī, known as Ustād-i Khurāsān (Master of Khurasan). The text differs considerably from that of al-Urmawī and his successors. Being strictly related to musical practice, it resembles the later, less 'scientific' Persian musical literature. Some of the mode names, and the arrangement of the 12 main modes (called *parda*) and the 6 derived modes (called *shuʿba*) are different, and its principal term, *bāng* (voice, sound), known hitherto only from later Persian and Turkish sources,[31] appears here for the first time: 'You should know that the science of music (*ʿilm-i mūsīqī*) consists of 18 *bāngs*.' Since 1 *bāng* can be divided into 2, it seems that Nīshāpūrī meant the 18 steps of the double octave, including major and minor thirds and sixths.

29. Wright, 1992.
30. Wright, 1978, p. 90, note 2.
31. Jung, 1989, pp. 102–3.

In the text, the *bāng* theory is related to a 2-stringed cordophone, most probably the *tanbūr* or *tunbūr* of Khurasan (see below). In a stricter sense, the term *bāng* determines the whole- and half-tone steps in relation to the division of the frets. Thus each mode is defined by a certain number of initial *bāngs*. Half a *bāng* is the minimum, 2 *bāngs* the maximum. In Table 1, Nīshāpūrī's 12 modes and their characteristic *bāngs* are listed in the order given in the manuscript, i.e. by decreasing *bāngs*. They are compared with the mode names of al-Urmawī and followed by the 6 derived modes of both sources. The names mentioned in the eleventh century by Ibn Sīnā, Manūchihrī and in the *Qābūs-nāma* (where no distinction is made between main and derived modes) are given in romanized form.

TABLE 1. Musical modes (al-Urmawī and Nīshāpūrī)

Al-Urmawī (1236)	Nīshāpūrī (prior to 1258)	
Main modes (*parda*):	Main modes (*parda*):	Number of *bāngs*:
ʿushshāq		
nawā		
būsalik		
rāst	rāst	2
ʿirāq	*mukhālif-i rāst*	2
isfahān	māda	2
zīrāfkand	ʿirāq	1½
buzurk	*mukhālifak*	1½
zankūla	būsalik	1½
rāhawī	nawā	1[½]
husaynī	*nihāwand*	1½
hijāzī	rahāwī	1
	isfahān	1
	husaynī	1
	ʿushshāq	½
Āwāz modes:	*Shuʿba* modes:	Derived from:
kardāniya	*zīrkash*	*husaynī* and *māda*
kawāsht	baste	*mukhālifak* and *rāhawī*
nawrūz	*ʿuzzāl*	*nawā* and *ʿushshāq*
māya	*nigārīn*	*būsalik* and *isfahān*
shahnāz	*hijāzī*	*ʿirāq* and *nihāwand*
salmak	*sipihrī*	*rāst* and *mukhālif* [*-i rāst*]

In the anonymous fourteenth-century Persian treatise, the *Kanz al-tuhaf* [Treasury of Gifts], *nihāwand*, the eighth of Nīshāpūrī's main modes, is called the Bukharan equivalent of *zankūla*; *sipihrī*, the last of Nīshāpūrī's *shuᶜba* modes, is called the Khurasanian variant of the mode known as *dugāh*.[32] Until the discovery of Nīshāpūrī's text, these and similar remarks were the only hints at individual traditions developed in Khurasan and Transoxania; Nīshāpūrī is the first to give us more detailed information.

The academic study of music

Khurasan was also known as one of the major centres of classical learning in Islam. This included musical ethics as a philosophical discipline. The versatile scholar Abū Zayd al-Balkhi (850–934), who had studied in Baghdad with the philosopher Abū Yūsuf al-Kindi (d. *c.* 870), wrote extensively on the effects of music in a book called *Masālih al-abdān wa 'l-anfus* [Sustenance for Body and Soul].[33] The same subject was taken up by Abū Zayd's pupil in the second generation, namely the physician Ibn Hindū from Nishapur (d. *c.* 1029); he placed the musician, alongside the pharmacist, as an assistant to the physician.[34] A direct pupil of Abū Zayd al-Balkhi was Ibn Farīghūn, who may have been a member of the ruling family in Guzgan (northern Afghanistan). Ibn Farīghūn left a remarkable work, the *Jawāmiᶜ al-ᶜulūm* [Comprehensive Work on the Sciences] (see above, p. 365), where the 'composition of melodies' (*ta'līf al-luhūn*) is listed as one of the metaphysical (!) disciplines of philosophy, together with arithmetic and astronomy. Music is said to reveal 'harmony and disharmony in the moving energies of the celestial and terrestrial, physical and spiritual phenomena'.[35] Here, the Greek notion of the harmony of the spheres meets the Iranian concept of the influence of the celestial bodies and the impact of sound on the individual. The pre-Islamic Sasanian system of seven modes was regarded as a representation of the seven planets.[36] That of Islamic Iran developed into a 'zodiacal' system of clearly astrological connotation. Consequently, the suitable time of performance, and the choice of the appropriate mode, became a main topic of Persian writings on music, including those produced in Khurasan.

32. Bīnish, 1371/1992, p. 106.
33. Abū Zayd al-Balkhī, 1984, pp. 224–31.
34. Shiloah, 1972, p. 460.
35. Ibn Farighūn, 1985, pp. 144, 170.
36. Dānishpazhūh, 1344/1965, pp. 100–1.

Musical instruments

In the last quarter of the tenth century, Abū ᶜAbd Allāh Muhammad b. Ahmad al-Khwārazmī compiled, in Bukhara, his dictionary of scientific terms entitled the *Mafātīh al-ᶜulūm* [Keys of the Sciences], dedicated to the vizier of the Samanid Nūh II (976–97), a ruler who was particularly fond of music (see above, pp. 363–4). Besides theoretical terms, the chapter on music deals with Greek, Arabic and Persian names of musical instruments originating from China in the east to Byzantium in the west.[37] Among them figure the principal instruments of Khurasanian court music, the four-stringed and later the five-stringed lute of the *ᶜūd* type and the vertical angular harp (*chang*; for the instrument, see Part One above). Both instruments had been inherited from pre-Islamic Iran.

Besides the lute and the harp, several other instruments were common to the musicians of Khurasan. Ibn Khurradādhbih (d. 911), whose father had been governor in Tabaristan, mentions the seven-stringed *wanj* or *muwannaj* as one of the characteristic instruments of this and neighbouring regions. He says it was 'played like a harp',[38] an insufficient indication for a convincing identification of the instrument. The *rabāb* was also 'well known to the people of Khurasan', as al-Khwārazmī writes, without, however, describing the instrument. It seems to have been the bowed chordophone (the proto-rebec and forerunner of the North African *rabāb* of today) treated by his elder contemporary al-Fārābī. Among the aerophones, the reed instruments *nāy* (Arabic, *mizmār*) and *surnāy* (Arabic, *saffāra* or *yarāᶜ*) are listed by al-Khwārazmī.[39] Together with lute and harp, the *nāy* formed the main body of melodic instruments of courtly 'chamber music'. Two generations after al-Khwārazmī, the poet Manūchihrī mentions 20 names of instruments, among them the *mūsīqār* (pan-pipes) and, for the first time in oriental literature, the *santūr* (box zither). He is familiar with the Indian one-stringed stick zither, the *kingira* (the predecessor of the *kendrā* of Rajasthan), which was common in Iran, and he mentions the names of several military instruments.[40]

The pandore

The most popular chordophone of Khurasan was the pandore called *tanbūr* in Persian and *al-tunbūr al-khurāsānī* (the 'pandore of Khurasan') in Arabic. It was regarded as the specific instrument of Muslim Central Asia for centuries, but there is no iconographic evidence and no proper description of the *tanbūr*

37. Al-Khwārazmī, 1895, pp. 235–46.
38. Ibn Khurradādhbih, 1961, p. 16; Farmer, 1928, pp. 511–12.
39. Al-Khwārazmī, 1895, p. 237.
40. See Mallāh, 1363/1984.

from the first centuries of Islam to tell us about the actual shape of its body. We learn from al-Kindī that the instrument was mounted with 2 strings and that it had '7 or more' frets. The tuning of the strings and the position of its frets were described a century later by al-Fārābī (d. 950), who specifies that the instrument was used in Khurasan and its eastern and northern neighbouring regions and that it differed in form and length but always had 2 strings of the same kind.[41] He gives a precise description of the function of the tailpiece, the correct position of the bridge near the end of the soundbox, and the position of its 2 lateral pegs. The long neck was normally mounted with 5 *dasātīn rātibas* ('fixed' frets) and 13 *dasātīn mutabaddilas* (movable or 'interchangeable' frets), making a total of 18. The 2 strings could be tuned in 9 different ways. Normally, they were tuned a major second apart, so the instrument had a total range of one tenth. The tuning of a minor third was called 'tuning of Bukhara'. The scale was divided into a regular series of 2 Pythagorean *limmas* (90 cents) and 1 *comma* (24 cents) each. In its standard tuning, the *tanbūr* or *tunbūr* thus lacked the 'neutral' third and other microtone positions. These were obtained, if so desired, by additional frets. In this case, the number of movable frets could exceed 20.

In the first half of the fifteenth century, the otherwise unknown poet Ahmadī composed an amusing 'Contest of String Instruments' in Chaghatay Turkic, the literary idiom of the Turkish population of Khurasan and Transoxania.[42] Seven instruments, representing seven nations and religions (cf. the number of planets and climates!) and, at the same time, seven ranks or social standings, argue with the trouble-maker, the *tanbūra*, about their musical (and social) value and importance. The *tanbūra* is characterized by a long neck mounted with frets 'from head to foot', and by having two strings, but no pegbox. It can thus be regarded as a successor to al-Fārābī's '*tunbūr* of Khurasan'. The instrument seems to personify certain 'Turkic' pretensions in face of the Persian (and Arabic) cultural hegemony of the educated urban societies. In Table 2, the antagonists of the *tanbūra* are listed in order of their appearance.

Some of the above characteristics of the instruments are clearly delineated, others are alluded to in metaphors. In the end, the *tanbūra* is accused of having started the trouble. It shows repentance and all the instruments play a 'melody of reconciliation'. Besides its political implications, the poem can be regarded as a depiction of the colourful international music scene at the Timurid courts.

When describing a festivity that Shāh Rukh gave in Samarkand in the summer of 1404, the historian Hāfiz-i Abrū (d. 1430) also speaks of musicians of seven different nations performing their own music. He uses the term *tarīqa* for the Persian style, the Turkish word *yosun* (custom) for the Turkish, and the

41. Al-Fārābī, 1967, pp. 698 et seq.; d'Erlanger, 1930, pp. 242 et seq.
42. Bodrogligeti, 1987.

TABLE 2. The antagonists of the *tanbūra* in Ahmadī's work.

Instrument	Representative of	
	people/religion	social rank or class
Lute (*ʿūd*)	Arab	King
Harp (*chang*)	Persian	King's boon companion
Plucked chordophone /*qopuz*/	Turk	Prince
Half-tube zither (*yātūghān*)	Mongol	'Newcomer' of the warrior class
Plucked chordophone /*rabāb*/	Central Asian Islam	Sufi dervish
Spike fiddle (*ghīzhak*)	Central Asian shamanism	Itinerant story-teller and singer of epics
Stick zither (*kingira*)	Indian Hinduism	Ascetic, beggar

Mongol word *ayalghu* (song, melody) for the Mongol contribution. He further differentiates between the styles of (other) Iranian (*ʿajam*), Arab, Chinese and Altaic musicians by using different Arabic terms meaning 'manner', 'rule' and so on to stress the variety of styles.

The Chinese impact on the instruments played under the Timurids is shown in miniatures and documented by al-Marāghī. Among the 40 instruments he mentions in his books[43] are the Chinese lute *pīpā* (Chinese, *p'i-p'a*) and the mouth-organ *chubchīq* (Chinese, *sheng*), known already to al-Khwārazmī in the tenth century. But in addition to these, the Mongol half-tube zither *yātūghān* (Mongolian, *yatuga*, *yatga*), one of the champions in Ahmadī's poem, and the plucked cordophone *shidirghū* or *shidurghū* (Mongolian, *shudraga*), are also labelled 'Chinese' by al-Marāghī, who tends to confuse Chinese with Mongol, and Mongol with Turkish elements.

The modes and song forms of Turkish music

When al-Marāghī speaks, in a most revealing passage, about the 9 basic modes and the 366 derived modes (or melody types) called *kök*, he ascribes them at one moment to the Mongols and at another to the Turks.[44] Now the term *kök* is a (Chaghatay) Turkish word, meaning 'melody' (*āhang*) according to ʿAlīshīr Nawā'ī (d. 1501), the promoter of Turkish literature in Herat. The two mode names that can be clearly identified – *ulugh kök* (great mode) and *qutadghu*

43. See Farmer, 1962.
44. Al-Marāghī, 1372/1993, p. 199; 1344/1965, p. 129; 1370/1991, p. 356; Doerfer, 1963–75, Vol. 4, pp. 290–1.

(auspicious) – are also Turkish. A third name may be the Turkish *yürüsh* or *yörüsh* (march). At the same time, the term *kök* was also a Turkish loan in Mongolian (*kög*), and one of the modes, *quladu* (white falcon), bears a name known from modern Western Mongolian (Kalmuck). On the whole, the system looks like a Central Asian blend dominated by Turkish elements and seems to represent the Turkish counterpart of the local Khurasanian and the 'international' Irano-Arab modal systems. The 9 basic *kök*s may be regarded as representative of the '9 heavens' of the Turks, corresponding to the 12 'zodiacal' *parda*-modes of the Iranians. The 366 derived modes or melody types were intended to cover the daily repertoire performed 'in the assembly of the Khan'.[45] The word *kök* has survived, in the form of *küy* and so on, as a fundamental modal term among the Kyrgyz, the Bashkir, the Kazakh and other Turkic peoples of Central Asia.

The music of the Turks of Khurasan (and Transoxania) had already been noticed by al-Kindī in the ninth century. He stated that the Turks had a musical style of their own, based on the (Pythagorean) Greek scale. In al-Urmawī's modal system of the thirteenth century, the diatonic modes *ᶜushshāq*, *nawā* and *būsalīk*, based on the mixolydian, hypodorian and hypophrygian scales respectively, were still called characteristic modes of Turkish music.[46] This was repeated by al-Urmawī's disciples and successors up to al-Marāghī, who points out that the *kök* modes were cognate, in their tonality, with these three modes.[47] Another aspect of Turkish music was taken up by ᶜAlīshīr Nawā'ī. In one of his books, he gives examples of seven traditional Turkish song forms, such as the wedding song *chenge* with its fixed rhyme *yār yār* ('O friend, friend'), or the strophic forms *tuyuq*, also called *türkī* (the term 'folk song' of later Ottoman Turkish), and *qoshuq*, sung in the metre *urghushtek* (the first known term of Turkish musical metrics). The latter were favoured by Sultān Husayn Bayqara (1473–1506) and performed at the Herat court. The 'Turkish' plucked chordophone (*qopuz*) and the 'shamanistic' spike fiddle (*ghīzhak*) of Ahmadī's poem were indeed common instruments of the Turks in Khurasan. In Karakhanid Turkistan (eleventh century), the *qubūz* played the most prominent part and was even played by singing girls in competition.[48]

Military bands

From the tenth century onwards, court military bands (*nawba*, *mihtar*) became one of the prerogatives of local rulers, in Khurasan as in other parts of the

45. Al-Marāghī, 1372/1993, p. 199.
46. Al-Urmawī, 1984, p. 90.
47. Al-Marāghī, 1372/1993, p. 199.
48. Al-Kāshgharī, 1939–41, Vol. 2, p. 220.

Islamic world. They played at the daily prayer times, at various official occasions and during warfare. The bands are depicted on miniatures and their employment was recorded by historians. Some of the instruments are described by al-Marāghī,[49] such as the *nafīr* (straight trumpet) and its Turkish relative, the extra-long *burghū* (Ottoman Turkish, *borgu*, *boru*), the *karranāy* (S-shaped trumpet), the shawm (*surnā*), and a wind instrument called *nāy-i chāwūr*, used by 'some Turks'. Among the membranophones, al-Marāghī concentrates on the *duhul* (drum), the *naqqārāt* (small kettledrums; sing. *naqqāra*), the *kūs* (ordinary kettledrum) and the *kūrgā* (*kögürge*, *kögerge*, Mongol monster kettledrum). The importance of the ruler's band was emphasized by splendid craftsmanship; the kettledrums in the *nawba* of the Khwarazm Shah ᶜAlā' al-Dīn Muhammad were adorned with silver and gold.

The Sufis and music

The Islamization of Khurasan and Transoxania was a lengthy process and in the tenth century some Buddhist, Manichaean, Zoroastrian, Jewish and Nestorian Christian communities still existed in the region. They were surrounded by the acoustic signals of Islam, the *nawba* and the *adhān* (call to prayer), and by the attractive spirituality of Sufism that allowed the use of *samā*ᶜ (music) and *raqs* (dance). The importance of the Sufi orders in propagating the Islamic faith in Central Asia, as well as in stimulating the musical culture of Islam, was considerable. Even the use of the term *maqām* (mode) instead of *parda*, which first occurred in fourteenth-century Iran and spread throughout the eastern Islamic world, may have been influenced by the Sufi term *maqām* (spiritual stage).

The founder of the Mawlawī or Mevlevi order of 'whirling dervishes', Jalāl al-Dīn Rūmī (d. 1273), was a native of Balkh and had left his home town for Konya when he was about 10 years old. What might have inspired him to cultivate and bequeath to his disciples a meditative circular dance that still fascinates the spectator today? It should be mentioned here that 'whirling' female dancers from Central Asia, 'reminding one of flying white cranes', had aroused the enthusiasm of the Chinese of the T'ang period,[50] and that in Islamic times, Khurasan was still known for its dances. It thus may well be that the art of *charkhīdan* (circling) that is cultivated in the Persian *zūrkhāna* (the traditional gymnasium) up to the present day,[51] had been part of the dance repertoire of Khurasan at the beginning of the thirteenth century when Rūmī was growing up in Balkh.

49. Farmer, 1962, pp. 247–8.
50. Hye-Kerkdal, 1961, p. 43; Mahler, 1959, pp. 147–8.
51. See Battesti, 1968, pp. 196–7.

Part Three

FESTIVALS, DRAMA AND THE PERFORMING ARTS IN KHURASAN AND TRANSOXANIA

(M. H. Kadyrov)

Feast-days and festivals

Zoroastrian and Christian feast-days, with their rites and accompanying theatrical representations and pageants, were widely celebrated alongside Muslim feast-days. Hence Muslims observed the festivals of baptism, the summoning of rain, the night of touching, when women mingled freely with a crowd of men, and pilgrimages to the imprisonment pit of Joseph, son of Jacob, and other sacred places and tombs, the origins of which lay in all kinds of pre-Islamic faiths. Muslim feasts, including ᶜĪd al-Fitr (at the end of the fast of Ramadan), ᶜĪd al-Ad'hā (the Feast of Sacrifice) and Mawlūd (the Prophet Muhammad's birthday), were, of course, observed equally widely throughout the Islamic lands. These festivals were often accompanied by fêtes, carnival processions and fairs, which always included performances by folk and professional musicians, singers, actors and skilful dancers.

In writing of the feast-days of the Persians, and later of the Sogdians and the Khwarazmians, in his *al-Āthār al-bāqiya* [The Remaining Traces (of Past Ages)], al-Bīrūnī (973–1048) distinguishes between secular and religious festivals. Many of these old secular festivals were widely disseminated throughout the Islamic world, including Khurasan and Transoxania. Nawrūz (the New Year festival), Mihragān (the autumn festival) and Sada (the winter festival) were especially popular. Nawrūz began to be celebrated in a slightly different manner and at a different time of year under the Islamic caliphate. It had previously been celebrated in the summer, but al-Ma'mūn (813–33) and al-Mutawakkil (847–61) decided to shift the beginning of the year from the summer to the month of Farwardīn (the first month of the Iranian year, beginning on 20, 21 or 22 March) and their decision was implemented by al-Muᶜtadid (892–902). That Nawrūz began to be celebrated in the new style in Khurasan under Sultan Malik Shāh (1072–92) was due in no small measure to the astronomical experiments of ᶜUmar Khayyām (*c.* 1048–1123) concerning the compilation of a new solar calendar (see above, Chapter 7, p. 204). In his *Nawrūz-nāma* [Book of Nawrūz], he asserted that the festival was connected with the name of the legendary king Jamshid, while the association of Mihragān and Sada with the name of Farīdūn had been widely noted by the ᶜAjam (i.e. the Persians) and also Turan, since Farīdūn had handed over Turkistan, Rum and ᶜAjam to his sons Tūr, Salm and Īraj respectively.

According to al-Bīrūnī, the Persians divided the year into 4 seasons and

12 months. There were feast-days in every month. Nawrūz was widely celebrated by them as marking the beginning of the creation of the world and the awakening of nature, a time when people sprinkled water on the earth, gave each other presents and ate honey and a sweet known as *halwā*. The autumn festival of Mihragān, when the Persians wore a crown bearing a depiction of the sun and its chariots, was celebrated on the sixteenth day of the seventh month Mihr (falling essentially in September). The Persians also observed the traditional festivals of Urdībihishtagān, Khurdadagān, Tīragān, Shahriwaragān, Ādhar-Jashn, Bahmanjān, Muzhgirān, Abanagān, Anīrān, Isfandiyārmad and others celebrating various natural phenomena, historical events and manifestations of human activity. Some of them were accepted and assimilated by the Islamic rulers; thus the Buyid ruler of Fars, ʿAdūd al-Dawla, accepted the custom of Isfandiyārmad, 'the Nawrūz of rivers and running water', when perfumes, rose-water and similar aromatic substances are poured into rivers, and he made it a festival for all the people.

Al-Bīrūnī comments that 'the Sogdians did not differ in any way from the Persians regarding the start of year and of some months; [they differed] only regarding where to position the additional five days'.[52] The Sogdians left these additional five days at the end of the months, but the Persians transferred them to the end of Ābān. The first day of Nawsard (spring) was Nawrūz, and the twenty-eighth day was the festival of Ramūsh-Aghām, which was initially celebrated at the fire-temple in the village of Ramush not far from Bukhara, but subsequently spread throughout Sogdiana. It was a time when people gathered around the village elders to eat, drink and make merry.[53] The Khwarazmians called the New Year festival Nāwsarchī. They also celebrated the festivals of Arī-Jāsuvān (the time when people 'get out of their clothes' and sow sesame), Ajghār (when winter wheat is sown), Faghbūriyya (the ruler's annual expedition [against the steppe Turks]), Azdākand-Khvār (the day when bread baked with fat is eaten), Chīrī-Rūj (the autumn festival, like Mihragān) and Wakhsh-Ingām (the festival worshipping the river Amu Darya, referred to by al-Bīrūnī as Mina's Night).

Many of the Zoroastrian festivals gradually disappeared in the pre-Mongol Islamic period, leaving only traces that survived as ordinary entertainment, but the New Year festival of Nawrūz and the spring festival of Mihragān remained firmly established, although with adaptations to the new conditions. Under the Ghaznavids, Nawrūz and Mihragān had the status of public holidays, for which special resources were made available, many gifts were given and charitable works were carried out throughout the country. The eleventh-century Ghaznavid historian Abu 'l-Fadl Bayhaqī describes how the Amir Masʿūd liked

52. Al-Bīrūnī, 1957, p. 253.
53. Ibid., p. 254.

to celebrate Mihragān with particular splendour. On 20 September 1031, for example, Mihragān was celebrated in the capital Ghazna:

> Envoys came from prominent persons and lords of 'Iraq and Turkistan'. Poets appeared and [began] to recite verses; then *mutribs* (musicians) played and sang and wine was passed round . . . The palace staff and the invited *mutribs* set about their business and everyone became merry, as if there was no sorrow remaining in that place but it had all fled away.[54]

The Amir Mas^cūd bestowed a sum of 30,000 dirhams on all the musicians and clowns. On 18 September 1036 he sat down to celebrate Mihragān in his new palace, where coins were strewn over him, and then in the winter quarters. Great lords and *nadīms* (boon-companions) arrived, wine was passed round and musicians played.[55] Mihragān was celebrated in 1037, initially with readings by poets and with festivities, followed by a very splendid celebration of ᶜĪd al-Ad'hā. In the words of Bayhaqī, 'on that day there was a review of the infantry and cavalry of the court and innumerable utensils and ornaments were on display because envoys had been sent by Arslan Khan, Bughra Khan, Lashkar Khan and the ruler Sakman . . .'.[56]

In addition to Nawrūz and Mihragān, there was also a long-standing tradition of celebrating the Zoroastrian festival of Sada at the end of January, as is attested by Bayhaqī and the court poets ᶜUnsurī, Farrukhī and Manūchihrī. Under the Ghaznavids, Sada was celebrated in the month of Bahman: a great bonfire was lit at night, large-scale illuminations were organized, a magnificent spread was prepared, usually on the plain, wine was drunk and music was played. Festive fires were even lit in the tents. In 1034, for example, Masᶜūd celebrated Sada near Merv, for which purpose tents were specially erected, many eagles and doves were brought in and quantities of firewood were prepared. According to Bayhaqī:

> Sada began with the amir sitting at first on the canal bank where an awning had been erected. *Nadīms* and musicians arrived, and firewood was lit . . . The glow from the fires was seen from a distance of about ten *farsakhs* [60 km]. Doves covered with naphthalene were released, pursuit of the ignited birds was begun; it was a Sada the like of which I had never seen.[57]

Many festivals associated mainly with Zoroastrianism were thus still being celebrated in the eighth–twelfth century in western Khurasan and Transoxania, often with a wealth of visual entertainment, dances and games specially com-

54. Bayhaqī, 1969, p. 261.
55. Ibid., pp. 444–5.
56. Ibid., p. 469.
57. Ibid., p. 393.

posed for them, including, for example, dances in which objects (bells, spoons and scarves) were used, martial dances with bows, swords and sticks, and also dances and theatrical performances associated with fire. According to the ethnographer T. Kilichev, the Khwarazmian dance cycle, the *maqām ufarī*, which is still practised, is the survivor of just such an ancient choreographic cycle.[58]

Festivals and dramatic spectacles associated with the images of Mithra, the god of the sun and agriculture, and Anahita, the goddess of water, fertility and well-being, still survived in one form or another into this period, these deities being originally represented as large dolls around which many dramatic events were enacted, often associated with fire. The well-known modern dance cycle *Lazgi* may have originated in the image of Mithra, in his further guise as the god of battles, as indicated by movements directed towards the sky, and gestures full of fiery temperament, depicting the sparks of the fire and rotations around it. In the pre-Mongol period, some of the great spectacles associated with the images of Mithra and Anahita went on for many days, but by then they had already been converted into local deities (Mithra, for example, was replaced initially by the image of Siyāwush and then by that of Rustam). They still exist today in spectacles and images: *kema oyin* ('the game of the boatwomen'), *yaghachayaq* ('stilt-walking'), *yaghachat* ('the game of the wooden horses'), *ashsha daraz* ('tall Ashsha') and *khubbim*, in which large dolls of Rustam, the wonders and the wild animals against which he fought are sometimes interchanged and episodes from longer spectacles presented.

Performing artists

In medieval Islamic times, there was still no clear differentiation between kinds of performers. The historical and literary sources frequently contain references to *mutrib*s, *qawwāl*s and *nadīm*s, which should be given a broader interpretation than has hitherto been the case. Musicologists, for example, treat only musicians and singers as *mutrib*s. In our view, the correct interpretation of the term is that *mutrib*s were performing artists, i.e. musicians, singers and dancers of both sexes, and could include performers skilled in making people laugh, i.e. comedians and parodists. The term *qawwāl* was equally broad and could denote an itinerant poet, a singer or an author-performer. *Nadīms* were often highly educated and gifted people, well-versed in history, religion and other disciplines, skilled organizers of the leisure activities and banquets of rulers, amirs and princes, and, of course, adepts in the fine arts and great conversationalists. All these qualities are set out in chapter 38 of the *Qābūs-nāma* by the Ziyarid prince Kay Kāwūs (see above, p. 140). In it we read that a *nadīm* should be a

58. Kilichev, 1988, pp. 53–4.

mutrib, a master of language, and 'should also know by heart a great many funny stories, interesting sayings and unusual tales'.[59] *Nadīms* received salaries, wore expensive clothes and took their place alongside rulers. There are historical records of many outstanding *nadīms*. One such was ʿAbd al-Rahmān, a *nadīm* of Muhammad, the son of Mahmūd of Ghazna, to whom Bayhaqī applies the term *ustād* (master), which is an indication of his high professionalism.

In Khurasan and Transoxania, the term *maskhara* was used for the comedy actor, and there are frequent references to them by Bayhaqī.[60] Although the term is an Arabic word, it was not used by the Arabs themselves for comedy actors; according to A. Mez, they used the word *samājāt* for comedy actors and *hākiyāt* for parodists and mimics.[61] Use was also made of jokes and witticisms. Chapter 13 of the *Qābūs-nāma* is devoted to 'An Account of the Rules of the Joke, and of Playing Chess and *Nard* [backgammon]'. Kay Kāwūs begs his son and his readers here to observe certain rules: to joke with someone younger than yourself or, at least, with someone of the same age, to keep a sense of proportion and to avoid foul language.[62]

We are best informed about those performers in the visual and auditory arts who served in the courts of rulers and important dignitaries. Bayhaqī tells us, for example, that not only the Ghaznavid sultans but also many important dignitaries kept troupes of musicians and actors. Thus Prince Muhammad had the services of *nadīms*, *mutribs* and *qawwāls* even when under house arrest, since 'he occupied himself only with feasting and making merry'.[63] A Hindu by the name of Tilak, who had once been an interpreter and translator, but subsequently became a military commander, had his own musicians: 'They played on the tambourine and the drum in his abode, as is the custom among Indian nobles.'[64]

Court patronage

Most of the dynasties that reigned in Khurasan and Transoxania tried in various ways to bring together eminent scholars and artists in their capitals, not necessarily because they desired the development of artistic culture but often for reasons of prestige. They undoubtedly included many musicians and actors. Palaces and gardens were used for the presentation of all kinds of festivals and

59. Kay Kāwūs b. Iskandar, 1951, pp. 196–200.
60. Bayhaqī, 1969, pp. 74, 401–2, 580.
61. Mez, 1973, p. 322.
62. Kay Kāwūs b. Iskandar, 1951, pp. 67–9.
63. Bayhaqī, 1969, p. 46.
64. Ibid., p. 366.

entertainments, such as the kiosk erected in the ᶜAdnani gardens near Herat on a whim of the Ghaznavid Amir Masᶜūd, and where musicians, singers, actors and women dancers performed.[65] Bayhaqī records that on 2 May 1031, in the Kushk-i Maᶜmur palace and in the town of Ghazna itself, 'there was so much rejoicing, merry-making, parading, drinking of wine, visiting and being visited, that nobody could remember the like'.[66]

Among the Ghaznavids, Masᶜūd was much given to all kinds of entertainment and games and he frequently organized banquets, festivals and military parades. To judge from the account given by Bayhaqī, the amir kept several troupes of musicians and actors and had his own *qissagūy* (story-teller) and *maskhara* (clown). *Nadīms*, *mutribs* and *maskharas* accompanied him everywhere – in his leisure time, on campaigns and when hunting: 'The Amir Masᶜūd rode out with the intention of hunting and amusing himself for three days with *nadīms*, close friends and *mutribs*,' writes Bayhaqī.[67] On 15 April 1031 the amir set out from Balkh for Termez. 'The amir went in one boat, the *nadīms*, *mutribs* and itinerant actors in another, and they came to the fortress.' Kutlugh, the commander of the *kutwal* (fortress), came out to meet them and started to entertain them. 'They began to eat, wine was passed round, and the sound of the *mutribs* singing could be heard from the ship, while on the bank the *mutribs*, women dancers and drummers of Termez, more than 300 in all, started up and began to sing and play, in such a way that I have rarely seen what I saw there in Termez.'[68] Enraptured at such a magnificent reception, Masᶜūd gave 155,000 dirhams to the people of Termez, including their *mutribs* and women dancers, who performed with their faces uncovered in front of men.

In a few cases, the names of performers at Masᶜūd's court are known, including Sitt-i Zarrīn, whose singing and dancing earned her a great reputation, and her partner in her performances, ᶜAndalīb, a male singer and dancer. They performed in Ghazna on the occasion of the marriage of Masᶜūd to the daughter of the Karakhanid Kadïr Khan Yūsuf on 6–9 September 1034.[69] Also in his retinue was Muhammad Bashnūdī, a musician who played the *barbad* and who performed at the Mihragān festival on 12 September 1038.[70] Bayhaqi also mentions a well-known minstrel and clown (*maskhara*) called Buki, who played the tambour and lived to the age of 93; his death in 1035 caused general grief.

65. Bayhaqi, 1969, p. 132.
66. Ibid., p. 246.
67. Ibid., p. 187.
68. Ibid., p. 233.
69. Ibid., p. 379.
70. Ibid., p. 493.

The story-teller

The story-teller was a popular figure. The repertoire of a *qissagūy* would include stories from *Kalīla wa-Dimna* and many other legends and myths. Bayhaqī, however, was hostile to story-tellers, regarding them as ignoramuses:

> They are simple people, who most love tales of unbelievable events, such as stories of marvels and fairies, and demons of the deserts, mountains and seas made up by some ignoramus. A crowd of like-minded people gathers and he tells his tale: 'I', he says, 'saw an island, at one point on which 50 people had landed; they had begun to cook a meal and had set up their cooking pots; when the fire flared up and the heat from it reached the ground, the island moved: it was a fish.' 'Or', he says, 'on such and such a mountain I saw such and such things, or an old woman, a sorceress, turned a man into a donkey and again another sorceress smeared his ears with oil and he was changed back into a man,' and similar rubbish that sends ignoramuses to sleep when they are read to at night.[71]

We may guess from the account that some story-tellers performed in public, gathering 'a crowd of people' around them, while others read from a manuscript before their master went to sleep. Those who performed in public spoke in the first person, making it appear that they were relating their own adventures, although their entire repertoire consisted of myths and legends.

The arts in Khwarazm

Khwarazm was, in general, renowned for its art – its distinctive music and interesting dances – during the reign of the local ruler Abu 'l-ᶜAbbās Ma'mūn in the early eleventh century. Himself highly educated, he held scholars, poets and performers in great esteem and loved to play the *rūd* (a stringed instrument) himself. Al-Bīrūnī worked for seven years in Ma'mūn's circle, where he was the object of the shah's special concern and respect, before going into Ghaznavid service.

Rules of behaviour for performing artists

Rules were drawn up governing the behaviour of musicians and performers in society. The whole of chapter 36 of the *Qābus-nāma* is devoted to this subject: the artist had to be a person of agreeable disposition, always neat, happy, attractive and well-spoken; should not become involved in the games and dis-

71. Bayhaqi, 1969, pp. 586–7.

cussions of those who had requested his or her presence; should not get carried away by wine or be coarse; should be blind, deaf and dumb when it came to divulging anything that had been seen or heard at the gathering; should take his or her calling seriously; and should perform in a manner befitting the audience and the ages of those present.[72]

The Sufi *dhikr*

There is evidence in the sources that Sufi *shaykh*s (holy men) conducted *dhikr*s (ceremonies of recitation of the Divine Names) during the eighth to the twelfth century in Transoxania. Tombs, shrines and *zāwiyas* (religious foundations of a quasi-monastic type) were the scene for *dhikr*s on religious feast-days and to celebrate important events. Devotees formed a circle (representing the universe), with the *shaykh*, the *hāfiz* (Qur'an-reciter) and the musicians most often in the centre but sometimes to one side. The *dhikr* (literally, 'invocation of the Name of God') began at a slow tempo with the people sitting, and with everyone clapping out the beat and swaying. As the tempo increased, they stood up and moved in defined eurythmic forms anti-clockwise and around their own body axis; the tempo increased still further, the emotional atmosphere became more charged and the participants reached a state of ecstasy, thus apparently purifying themselves, endeavouring to merge with the divine essence or at least approach it. The *shaykh* and the singers interrupted the action with their monologues and songs in high registers. According to the eastern Iranian writer on Sufism, al-Hujwiri, dancing made its appearance in *dhikr*s in the eleventh century and subsequently began to assume a prominent role.[73]

The effects of the Mongol conquests

The Mongol conquests of Transoxania and Khurasan, with their destruction of urban centres, had an adverse effect on culture, including the dramatic and performing arts, at least temporarily. Many musicians, singers, virtuoso dancers and actors had to emigrate to neighbouring countries, while those who remained eventually doubtless served the followers of Chinggis and the Mongol governors. There were fewer small ensembles of musicians, singers and actors, and large troupes became a rarity; during this period, most performers operated as individuals: as *bakhshī*s and *qissagūy*s (story-tellers) and *maddāh*s (eulogists), or as isolated musicians, singers and actors.

72. Kay Kāwūs b. Iskandar, 1951, pp. 186–90.
73. Mez, 1937, pp. 286–7; 1973, p. 420.

The local populations were nevertheless able to preserve their potential for artistic expression and this led to a gradual resurgence of artistic traditions. This process gathered momentum as Islamic and Turkish institutions were accepted and absorbed by the Mongol conquerors and as they abandoned their nomadic way of life; hence festivals, both religious and secular, began to revive.

Even so, the pace and level of artistic development remained far inferior to what they had been in the pre-Mongol period. A certain amount of political fragmentation of Transoxania and Khurasan during the fourteenth century made the normal development of art difficult, especially the organization of large-scale secular entertainments that require internal stability and peace. This explains the predominance of religious forms and Sufi influences in the arts during this period. The Moroccan traveller of the early fourteenth century, Ibn Battūta, describes numerous tombs of saints and the religious establishments (*zāwiyas*) connected with them, where Sufis usually lived and performed *dhikr*. The official receptions organized for Ibn Battūta were partly of a religious and partly of a secular kind. In Fath'abad, for example, the *shaykh* Yahyā al-Bākharzī arranged a reception in his honour at which there were recitations from the Qur'an, followed by an address from a *wāʿiz* (preacher), after which a number of *hāfiz*s sang 'very good songs' in Turkish and Persian.[74]

The Timurid revival

As urban culture revived, Timur established a basis for the new development. The craftsmen and scholars he had brought from many countries to his capital Samarkand included practitioners of the fine arts and others with an expert knowledge of the staging and performance of entertainment. These included large-scale festivals and carnival processions with a dramatic component, with hundreds of musicians, singers, actors, dancers and circus artists taking part in them. Timur and his successors celebrated every military victory and diplomatic success with a *tūy* (triumphant celebration) and a *bayram* (festival). Festivities were also sometimes organized before battles and sieges with the aim of arousing fighting spirit. Amusements and festivities were undoubtedly held for a select audience in the inner rooms of the splendid palaces and gardens of the ruler, but were mostly organized, however, in the *rīgistān*s (town squares) or in the open air – in orchards and pastures, on the banks of rivers and lakes, and in the *saylgāh*s (places of public assembly) outside the town boundaries.

The largest celebrations and festivals were held in Samarkand, Herat and Shahr-i Sabz. Careful preparations were made for these festivals: the city and its environs were decked for the occasion, arches and tents were erected in the

74. Ibn Battūta, 1971, p. 544.

pleasure grounds and pavilions, summer-houses and other temporary structures were provided. All the artists available in the city, plus others from outside, were mobilized: singers, musicians, actors, dancers and circus performers and also wrestlers, strongmen, horsemen and archers. The programmes of the performances were arranged by *kārfarmān*s (folk-theatre producers) and *bakāwūl*s (organizers of military and sporting contests and entertainments). The magnitude of the task facing the organizers becomes apparent when we remember that important festivals could last for a month or 40 days, and some for as long as 3 months. And, of course, there were also the calendar feasts of Nawrūz and Mihragān, and the Islamic feasts and ceremonies.

The artistic traditions established by Timur, including entertainments and games, were continued by his descendants. Groups of artists sprang up in the large cities, *tarab-khānas* (special buildings with stages) and *tamāshāgāh*s (arenas) were in use, and outside the cities there were *saylgāh*s (places for mass festivals and processions). One such *saylgāh* was at Kan-i Gil near Samarkand, where all the main official festivals of Timur and the Timurids were held. In Herat there was a special street in which actors and musicians lived and performed.[75]

Mīr ᶜAlīshīr Nawā'ī was patron to a whole generation of artists and actors, some of whose names are known: the *maskhara* Riyāz and the parodists ᶜAbd Allāh (the *dīwāna*, fool) and Khwāja Dihdār. Husayn Wāᶜiz Kāshifī and Mawlāna Riyāzī excelled as orators, and Sayyid Badr, Tāhir (the *chakka*, tiny one) and Māh-Chuchuk as dancers, while ᶜAbd al-Wāsīᶜ (the *munshī*, or secretary) was an outstanding wit.

In Timurid times, preference was given to secular theatrical ceremonies and rituals, and many ceremonies and rituals that had previously been associated with religion came to be accepted as ordinary spectacles. Performances in arenas and carnival processions, the basis of festivals both popular and official, were especially popular during this period. Most of the performances in arenas were strongly influenced by the way of life, outlook and tastes of the Turkish pastoralist tribes and communities in the rulers' military followings. The *paygā* (equestrian events), *qopkarī* (goat-lashing), *chawgān* (polo), *kayak oyin* (archery on horseback), contests with military weapons, *kurash* (wrestling) and similar pursuits were therefore prominent.

Traditional theatre and dance

There was a whole series of games and performances that we might, thinking in modern terms, call traditional theatre, comprising comic performances,

75. Belinitsky, 1946, p. 182.

puppet theatre and story-telling. Each of these categories, in turn, had its own forms and genres. Thus, for example, comic performances included satirical take-offs by the *maskhara*, the humorous pantomime of *taqlīd* (mimicry) and the sharp barbs of *zarāfat* (wittiness, subtlety), differing one from another in their repertoire and means of expression. The presentation of the *qissagūy*, the *wāᶜiz* and the *maddāh* was always serious, invariably providing the spectators with something with which to empathize, even to the point of becoming shocked. The *kavurchak oyin* (puppet theatre), on the other hand, appears to occupy a position midway between the theatre of humour and satire and the performances of preachers and story-tellers.

Dance was a varied form, ranging from the simplest imitations of hunting to the most delicate lyrical (and generally allegorical) dances, and from folk dances associated with the rituals of fire-worshippers to intricate classical dances performed to *maqām* melodies. Circus acts of the period included *dar-oyin* or *dar-bāz* (tightrope-walking), *afsūn* (hypnosis), *shaᶜbada* (sleight-of-hand), *koz baghlash* (conjuring tricks), *muᶜallaq* (acrobatics), *nayrang* (juggling) and *ram* (animal training). Many of the attractions were traditional and exclusive to Transoxania and Khurasan, but others were borrowed from India and China.

To sum up, the fourteenth and fifteenth centuries saw qualitatively new developments in drama and the performing arts and in the presentation of festivals in Khurasan and Transoxania. The skills and traditions of the pre-Mongol period were not only restored and developed but raised to new and higher levels; theoretical and practical bases were developed, more performers became professionals, and the contents and forms of expression of different cultures combined to form a new range of entertainment and the performing arts.

Conclusion

C. E. Bosworth

As noted in the Conclusion to Part One of Volume IV, there was in the fifteenth century a distinct shift in the balance of political and military power between nomadic and sedentary population elements within Central Asia and, more widely, in Inner Eurasia. To a considerable extent, this change was connected with the rise of powerful empires along the fringes – the Safavids in Iran, the Uzbek Shaybanids in Transoxania and the Mughals in India, among Muslim powers, and the kingdom of Poland-Lithuania and the principality of Muscovy among Christian ones.

Some sort of a similar break is discernible for the Islamic world in certain areas of the sphere of cultural and scholarly activity. This was not unconnected with attitudes to learning and science within Islam, which now came to concentrate on the preservation of the heritage of the past rather than on striking out into new ways of research and discovery. Hardly any significant figures whose work can be described as original and as breaking new ground appear after 1500 in the spheres of mathematics, astronomy, medicine and the natural sciences. Poetry, the most characteristic form of imaginative literary production in Islam, retained its practitioners, notably in Safavid Iran and Mughal India, but with no figures comparable to, say, Saᶜdi, Hāfiz, Jāmī or Mīr ᶜAlīshīr Nawā'ī. The visual arts, architecture and painting probably fared better in the post-1500 period, with Mughal northern India nevertheless more notable here than eastern Iran or Transoxania of the Uzbek Khanates. Thus in retrospect, the centuries before 1500 may be seen as those when Islamic civilization had been at its most creative, because, whilst never ceasing to proclaim the superiority of its faith as divinely favoured over all other religions and cultures, it had nevertheless been receptive to outside influences and able to absorb them within its own fabric.

In the eastern parts of Inner Eurasia, Tibet and Mongolia were separate political or tribal units, and distinct cultural areas during our period; it was not until the later sixteenth century that Buddhism became the state faith of the

Mongols within Mongolia, making Tibet their spiritual focus; from this time dates the use of the Mongolian term Dalai Lama (Oceanic, i.e. All-Embracing, Lama) as the official designation of the Tibetan Buddhist spiritual head in Lhasa. As has been emphasized in this book, the Mongols before *c.* 1200 are to us a people without history, and the cultural significance of the Mongol empire during the period of the great conquests lies mainly in the absorption of the Mongols by outside, higher faiths and cultures. Tibet, however, has a recorded history from the early seventh century A.D. onwards. By the end of our period, Buddhism had become the dominant faith in Tibet, though with many accretions from the earlier shamanistic Bon religion, and had gone through periods of reform and revival of spiritual life, often stimulated by outside influences from India and China. Literature remained confined to Buddhist religious texts, but the artistic achievements of Tibetan culture during this time were considerable, seen best of all in temple architecture and decoration and in painting, the main sources of inspiration here being Kashmiri and Nepali Buddhism.

The seven or eight centuries covered by this Volume were accordingly ones in which much of Central Asia and many of its peoples were drawn towards the civilizations of the lands on its fringes, yet ones in which the region made considerable contributions to human experience and the sum of human culture.

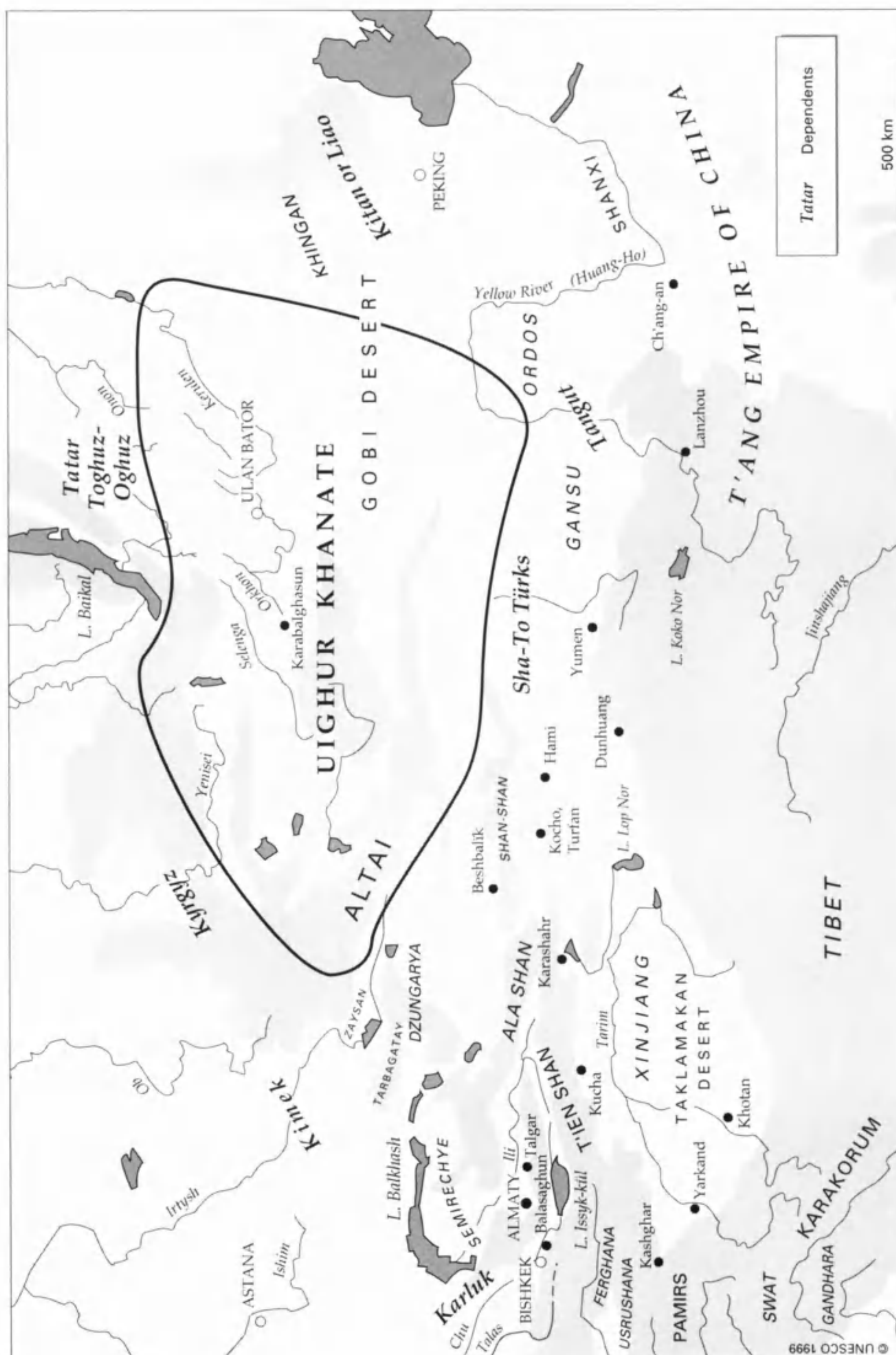
MAPS

N.B. Modern cities such as Tehran, Ashgabat, Dushanbe, Islamabad, Bishkek, Astana and Ulan Bator are inserted in order to give some guidance as to the administrative geography.

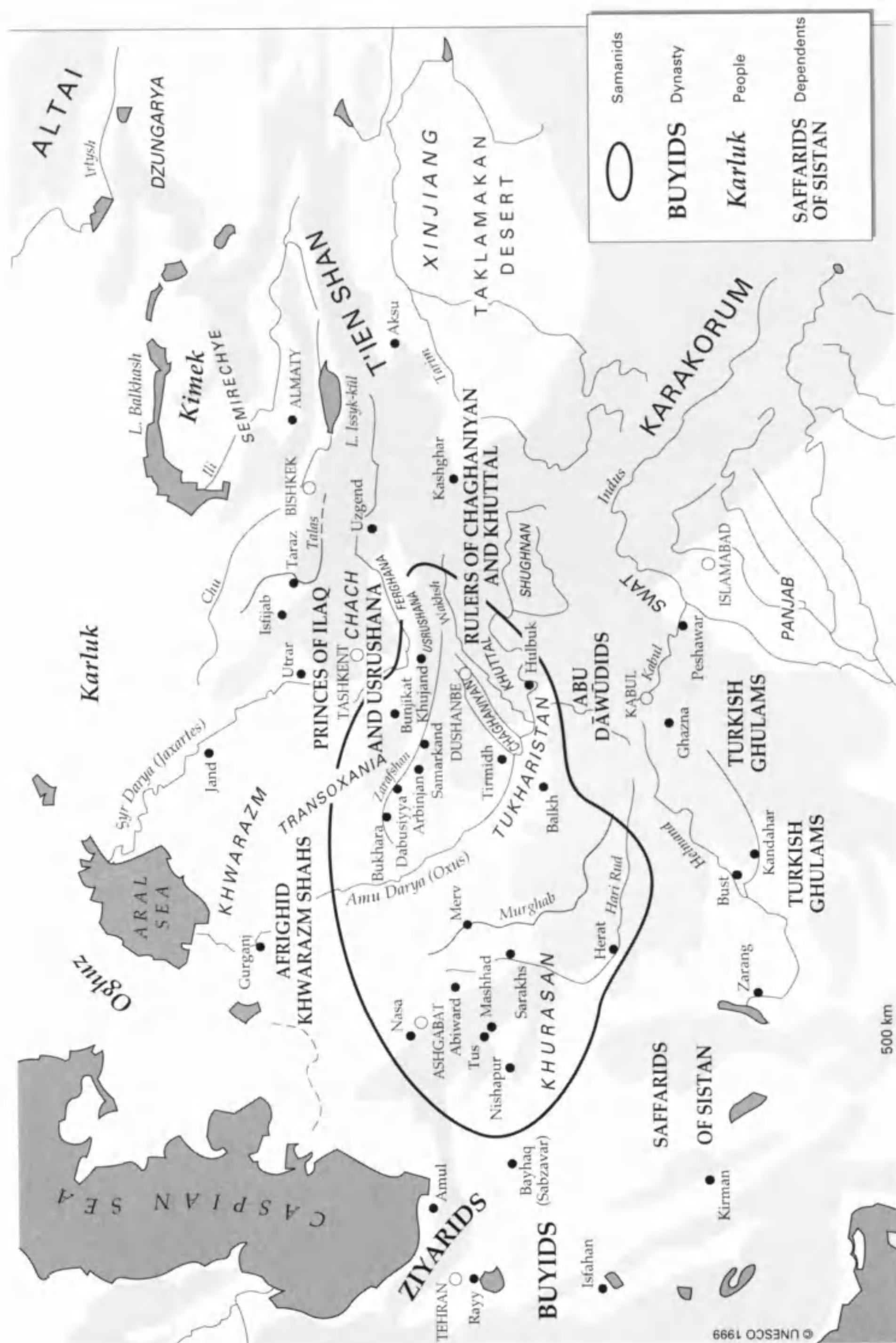


MAP 1. General map of Central Asia in the Islamic period up to 1500.

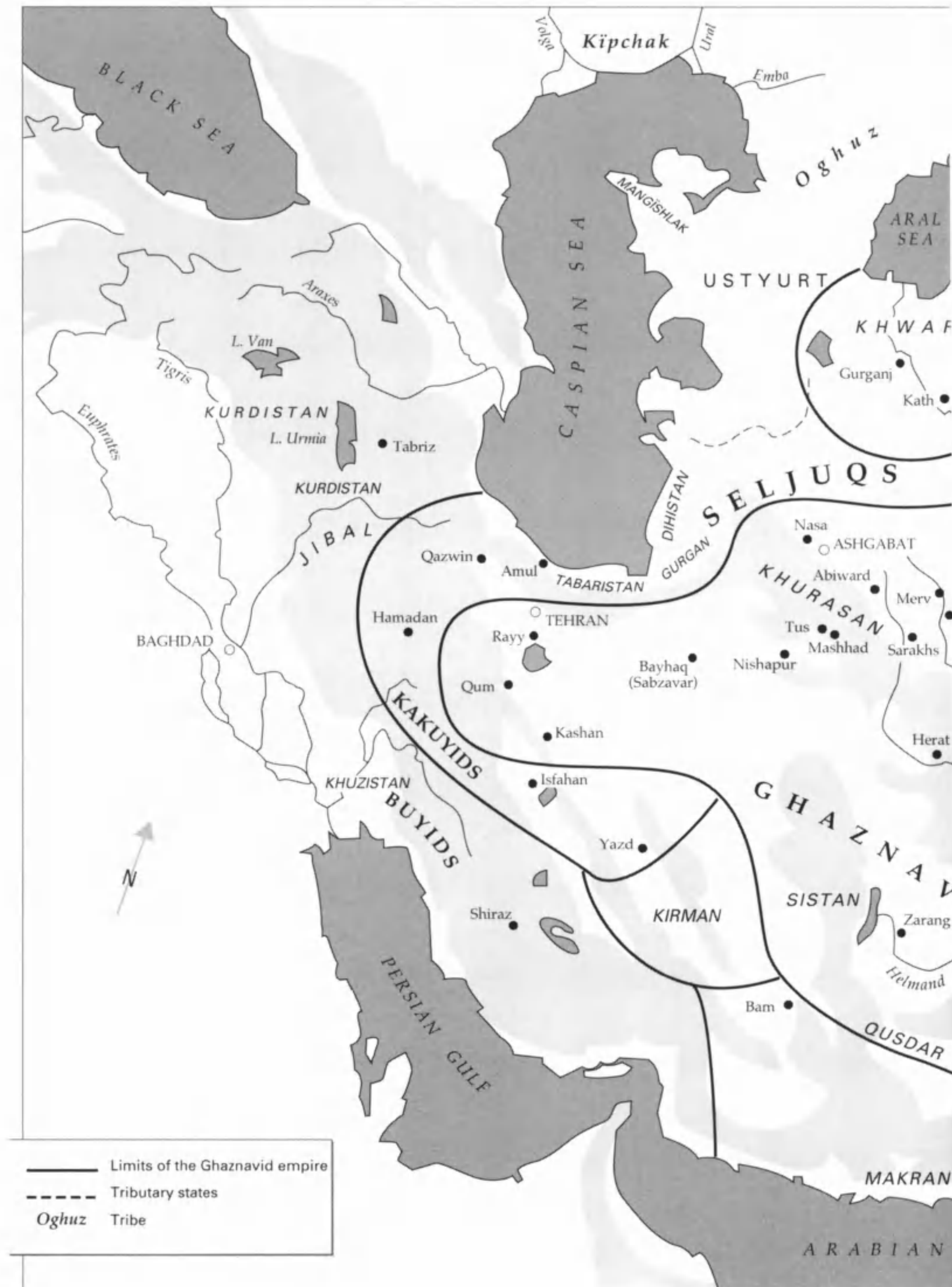

ASTANA
ALTAI
Ishim
Kimek
ZAYSAN
Irtysh
TARBAGATAY
Oghuz
Yengi-kent
Jezkazgan
BETPAK-DALA
L. Balkhash
DZUNGARYA
Karluk
ALATAU
Dzungarian Gate
SEMIRECHYE
Basmil
Uighurs
Syr Darya
Sarysu
Ili
Jand
Chu
ALA SHAN
Beshbalik
Signak
(Jaxartes)
Talas
Balasaghun
ALMATY
Turfan
Isfijab
Talgar
Utrar
Turkistan
Taraz
BISHKEK
Suyab
Karashahr
Navakath
KYZYL KUM
CHACH
L. Issyk-kül
T'IEN SHAN
Kucha
TASHKENT
Tarim
Paikent
Varakhsha
TRANSOXANIA
ILAQ
Almalik
Uzgend
Aksu
Bukhara
NURATAU
Jizak
Khujand
FERGHANA
Andijan
Amu Darya (Oxus)
Zarafshan
SOGDIA
XINJIANG
Panjikent
USRUSHANA
Wakhsh
Kashghar
Samarkand
Kish
Mount Mug
DUSHANBE
TAKLAMAKAN DESERT
Nasaf, Nakhshab
BAYSUN
WAKHSH
PAMIRS
CHAGHANIYAN
Tirmidh
KHUTTAL
BADAKHSHAN
TUKHARISTAN
Balkh
GUZGAN
Murghab
GHARCHISTAN
KABUL
SWAT
KARAKORUM
TIBET
Firuzkuh
Kabul
GHUR
Ghazna
Peshawar
KASHMIR
ISLAMABAD
ZABULISTAN
Bust
Lashkar-i Bazar
Kandahar
PANJAB
HIMALAYAS
Thaneswar
Multan
Muzaffargahr
Bhatinda
Bahawalpur
Hansi
DELHI
Indus
Ganges
SIND
Yamuna
Oghuz Tribe
500 km



MAP 2. The Uighur Khanate (745–840) and its neighbours.



MAP 3. The Samanids of Transoxania and Khurasan and their dependents (*c.* 970).



MAP 4. The empire of the Ghaznavids (*c.* 1030).

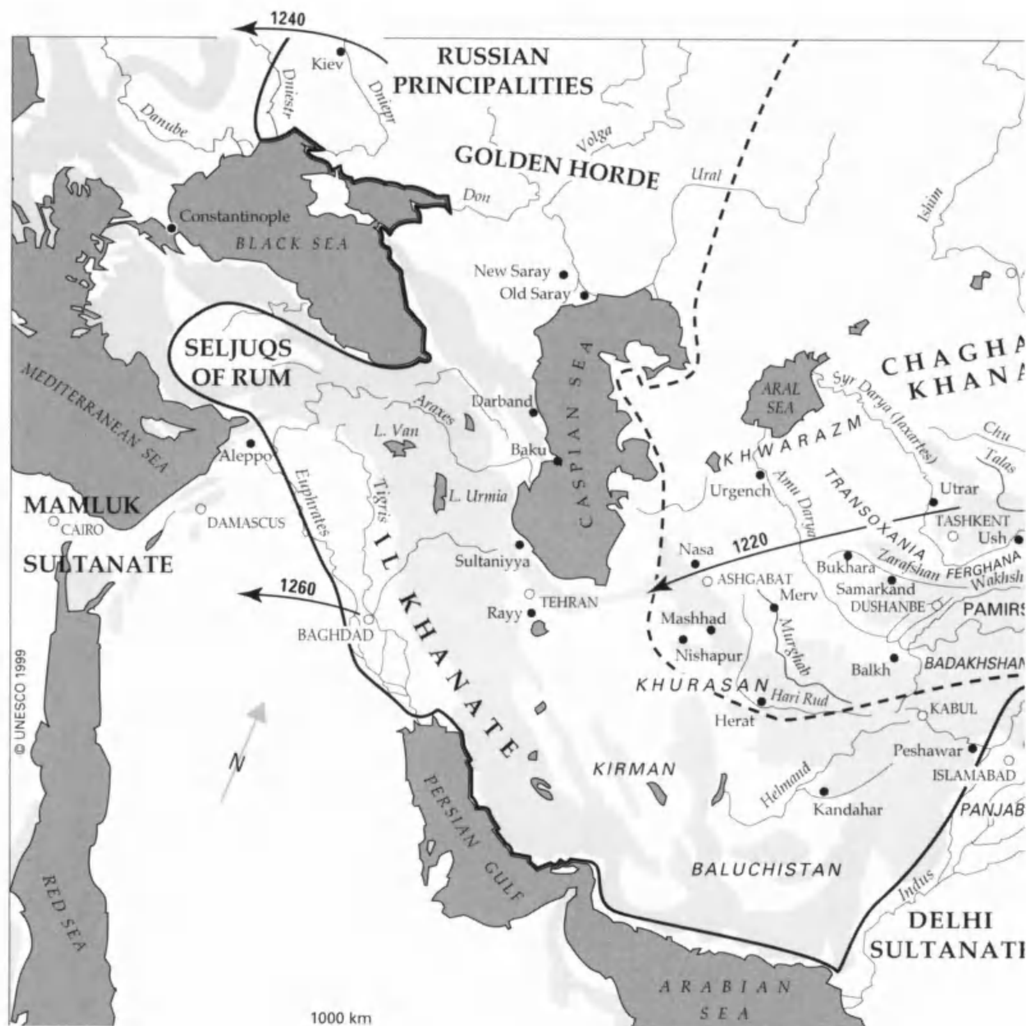

ASTANA
Ishim
Irtysh
Karluk
Yengi-kent
L. Balkhash
SEMIRECHYE
Syr Darya (Jaxartes)
Chu
Ili
Jand
Sïgnak
Talas
ALMATY
Isfijab
BISHKEK
Balasaghun
Utrar
Taraz
KARAKHANIDS
CHACH
L. Issyk-kül
T'IEN SHAN
TRANSOXANIA
TASHKENT
Uzgend
Tarim
ILAQ
Ush
Aksu
Amu Darya (Oxus)
Akhsikath
Bukhara
FERGHANA
Marghinan
Zarafshan
Khujand
XINJIANG
Kashghar
Samarkand
Wakhsh
Kish
DUSHANBE
PAMIRS
TAKLAMAKAN DESERT
CHAGHANIYAN
Tirmidh
KHUTTAL
BADAKHSHAN
Balkh
TUKHARISTAN
GUZGAN
Gilgit
Murghab
Hari Rud
KABUL
Kabul
Wayhind
TIBET
ZABULISTAN
Ghazna
Peshawar
KASHMIR
ISLAMABAD
RUKHKHAJ
Bust
Kandahar
Lashkar-i Bazar
Lahore
PANJAB
Kej
Thaneswar
Multan
Bhatinda
HIMALAYAS
Hansi
INDIAN PRINCES
DELHI
Indus
Kanawj
SIND
Ganges
Yamuna
Mansura
RAJASTHAN
Daybul
500 km
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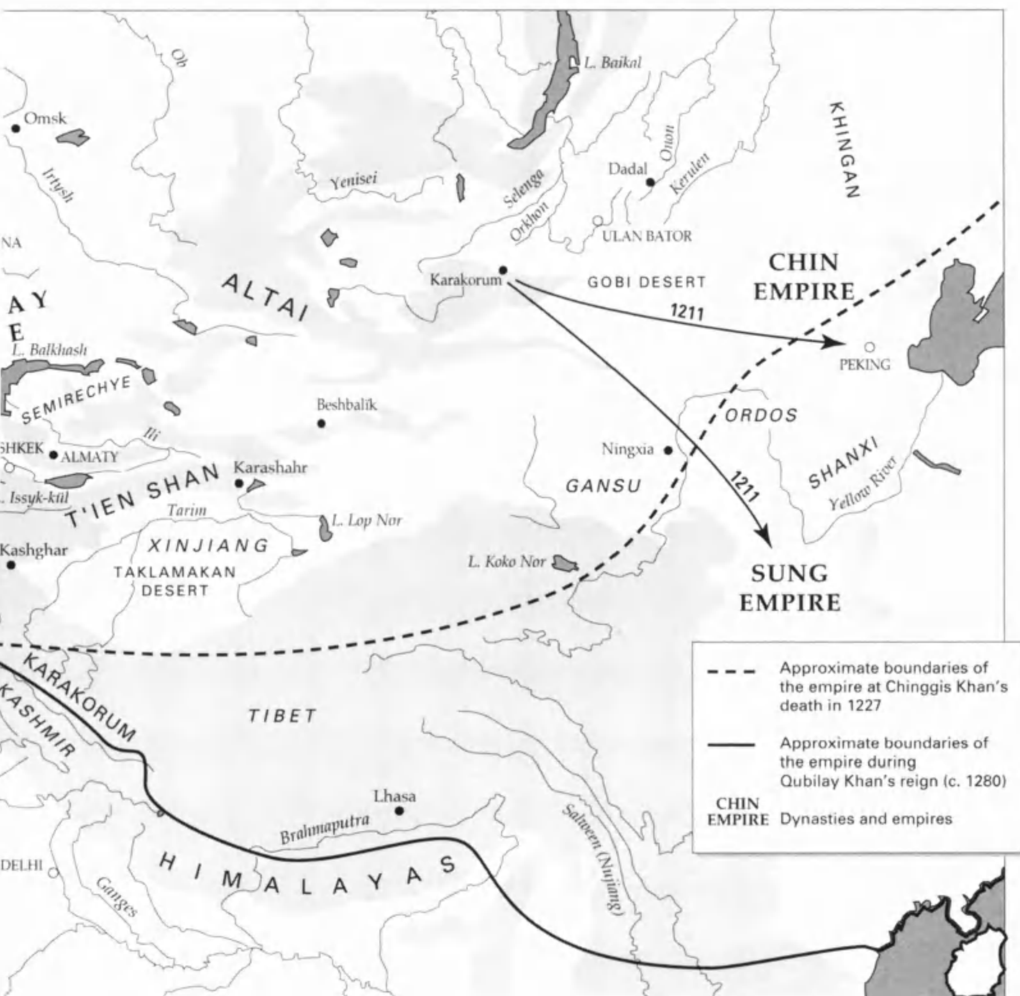
MAP 5. The Ghurids and their conquests and the Khwarazm Shahs (*c.* 1200).

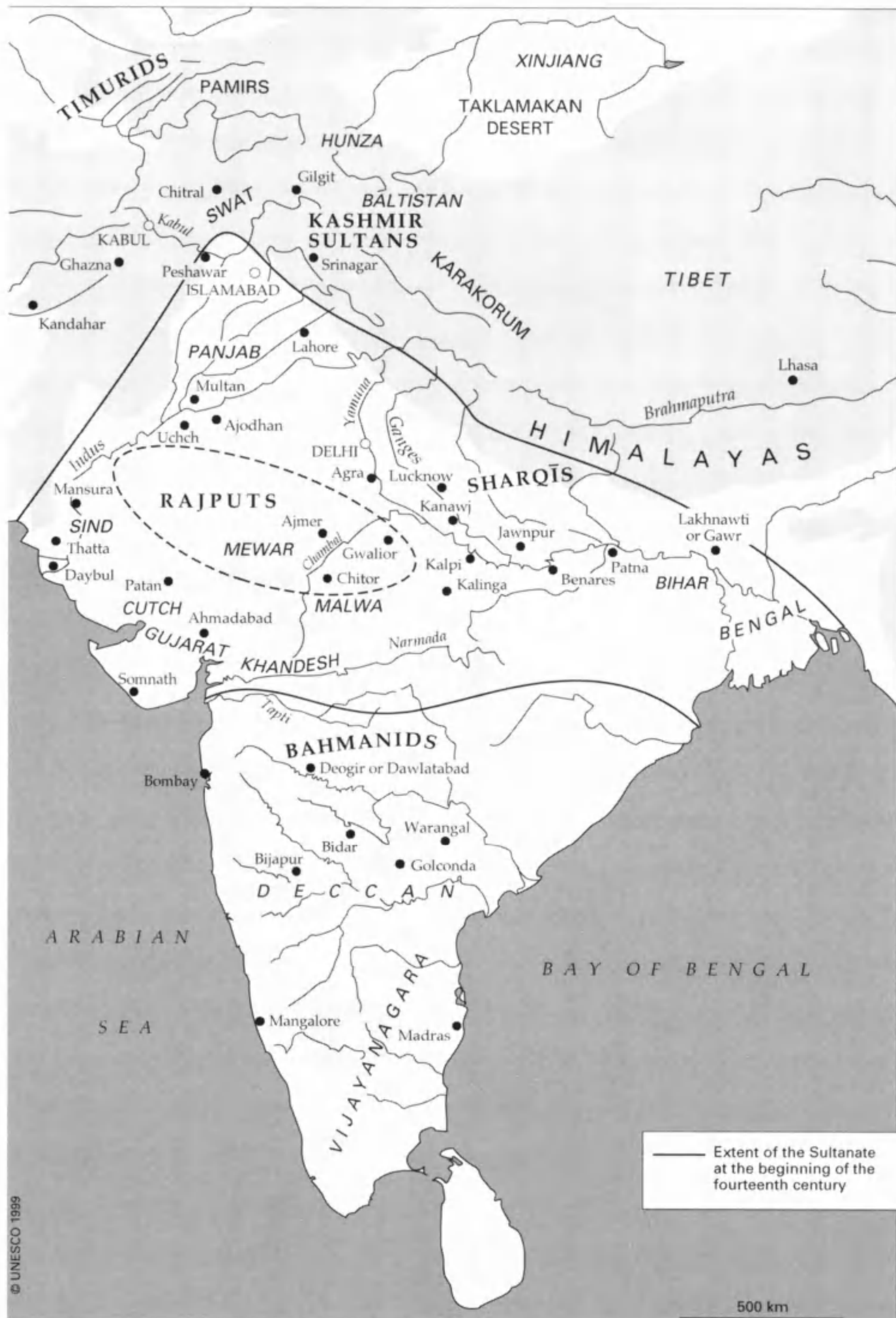


Irtysh
ALTAI
DZUNGARYA
CHYE
Kara Khitay
GOBI DESERT
MATY
Karashahr
Kocho, Turfan
Hami
Issyk-kül
T'IEN SHAN
Yumen
GANSU
Aksu
Tarim
Dunhuang
L. Lop Nor
XINJIANG
TAKLAMAKAN DESERT
L. Koko Nor
Lanzhou
Yellow River
Jinshajiang
ARAKORUM
TIBET
Mekong (Lancangjiang)
WALIK
Lhasa
Brahmaputra
Salween (Nujiang)
eerut
HIMALAYAS
Ganges
Kanawj
walior
Yamuna
Lakhnawti
Benares
BENGAL
Extent of the raids and conquest



MAP 6. The Mongol empire in the thirteenth century.


Omsk
Ob
Irtysh
Yenisei
L. Baikal
Selenga
Orkhon
Onon
Kerulen
Dadal
ULAN BATOR
KHINGAN
Karakorum
GOBI DESERT
CHIN
EMPIRE
1211
PEKING
ALTAI
L. Balkhash
SEMIRECHYE
Beshbalik
Ili
ALMATY
Karashahr
TIEN SHAN
Tarim
L. Lop Nor
Kashghar
XINJIANG
TAKLAMAKAN
DESERT
ORDOS
Ningxia
GANSU
SHANXI
Yellow River
1211
SUNG
EMPIRE
L. Koko Nor
KARAKORUM
KASHMIR
TIBET
Lhasa
Brahmaputra
Salween (Nujiang)
DELHI
Ganges
HIMALAYAS
Approximate boundaries of the empire at Chinggis Khan's death in 1227
Approximate boundaries of the empire during Qubilay Khan's reign (c. 1280)
CHIN
EMPIRE
Dynasties and empires



MAP 7. Northern and central India under the Delhi Sultans and the western Himalayan states.



MAP 8. The Middle East, Central Asia and northern India at the time of Timur's rise to power (*c.* 1370).



Ob
Yenisei
Ishim
Irtysh
ASTANA
ALTAI
L. Balkhash
ARAL SEA
Syr Darya (Jaxartes)
SEMIRECHYE
Chu
Jand
Signak
Talas
Ili
KHWARAZM
Urgench
CHAGHATAY KHANATE
BISHKEK
ALMATY
Turkistan
Utrar
CHACH
TRANSOXANIA
Kath
TASHKENT
L. Issyk-kul
T'IEN SHAN
L. Lop Nor
Tarim
Amu Darya
Bukhara
NURATAU
FERGHANA
Aksu
USRUSHANA
Zarafshan
Kashghar
XINJIANG
Samarkand
Kish
Wakhsh
Shahr-i Sabz
DUSHANBE
KHUTTAL
PAMIRS
TAKLAMAKAN DESERT
(Oxus)
Merv
BADAKHSHAN
Sarakhs
Balkh
TUKHARISTAN
Murghab
KARTS
Hari Rud
KARAKORUM
KABUL
Kabul
SWAT
Herat
TIBET
Birjand
Peshawar
KASHMIR
Helmand
ISLAMABAD
Kandahar
Lhasa
Zarang
Lahore
PANJAB
Brahmaputra
Multan
DELHI
Extent of Timur's conquests (1405)
Indus
DELHI SULTANS
Ganges
JALAYIRIDS Dynasty
SIND
Yamuna
ARABIAN SEA
Narmada

Bibliography and References

Abbreviations

AAHung = *Acta Antiqua Academiae Scientiarum Hungaricae*, Budapest
AIUON = *Annali del Istituto Universitario Orientale di Napoli*, Naples
AM = *Asia Major*, London
AoF = *Altorientalische Forschungen*
AOHung = *Acta Orientalia Academiae Scientiarum Hungaricae*, Budapest
APAW = *Abhandlungen der (Königlichen) Preussischen Akademie der Wissenschaften*, Berlin
BSOAS = *Bulletin of the School of Oriental and African Studies*, London
CAJ = *Central Asiatic Journal*, The Hague or Wiesbaden
EI². 1960– = *The Encyclopaedia of Islam*, 2nd ed., Leiden
EIr. 1980– = *The Encyclopaedia Iranica*, London/Costa Mesa, Calif.
EW = *East and West*, Rome
HM = *Historia Mathematica*, New York
IC = *Islamic Culture*, Hyderabad, Deccan
IJMES = *International Journal of Middle East Studies*
IOS = *Israel Oriental Studies*, Tel-Aviv
IQ = *Islamic Quarterly*, London
Iran, JBIPS = *Journal of the British Institute of Persian Studies*, London
Isl. = *Der Islam*, Berlin/New York
ITC = *Islamic Thought and Creativity*, Islamabad
JA = *Journal Asiatique*, Paris
JAOS = *Journal of the American Oriental Society*, New Haven, Conn.
JHAS = *Journal for the History of Arabic Science*, Aleppo
JRAS = *Journal of the Royal Asiatic Society*, London
MAIS = *Mémoires de l'Académie Impériale des Sciences de St.-Pétersbourg*, St Petersburg
MDAFA = *Mémoires de la Délégation archéologique française en Afghanistan*, Paris
MIDEO = *Mélanges de l'Institut Dominicain d'Études Orientales*, Cairo
MIO =*Mitteilungen des Instituts für Orientforschung*, Berlin
MW = *Muslim World*, Hartford, Conn.
NC = *Numismatic Chronicle*, London
SBAW = *Sitzungsberichte der K. K. Akademie der Wissenschaften, Phil.-hist. Klasse*, Vienna
SI = *Studia Islamica*, Paris
SM = *Scripta Mathematica*, New York
SPAW = *Sitzungsberichte der Preussischen Akademie der Wissenschaften, Phil.-hist. Klasse*, Berlin

TP = *T'oung-Pao*, Leiden
UAJ = *Ural Altaic Yearbook*, Berlin/Bloomington, Ind.
UAJb =*Ural-Altaische Jahrbücher*. Wiesbaden
WZKM = *Wiener Zeitschrift für die Kunde des Morgenlandes*, Vienna
ZAS = *Zentralasiatische Studien*, Wiesbaden
ZDMG = *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, Leipzig/Berlin/ Wiesbaden
ZRGG =*Zeitschrift für Religions und Geistesgeschichte*

CHAPTER 1

AALTO, P. 1950. Notes on the Altan Gerel. *Studia Orientalia*, Vol. 14. Helsinki.
ARODAKY, B. 1977. The Madrasahs. The First Universities in the Arab World. *UNESCO Courier*.
ASMUSSEN, J. P. 1984. The Sogdian and Uighur-Turkish Christian Literature in Central Asia Before the Real Rise of Islam: A Survey. In: *Indological and Buddhist Studies. Volume in Honour of Professor J. W. de Jong on his Sixtieth Birthday*, pp.11–29. Delhi.
BĀBUR. 1922. *Bābur-nāma*. English tr. A. S. Beveridge, *Bābur-nāma, Memoirs of Bābur*. London, 1979.
BAGCHI, P. C. 1927. *Le canon bouddhique en Chine*. Paris.
——. 1938. *Les traducteurs et les traductions*. Paris.
BARTOL'D, V. V. 1964. *Sochinenia*, Vol. 2. Moscow.
——. 1966. *Sochinenia*, Vol. 6. Moscow.
BAYHAQĪ, ABU 'L-FADL. 1324/1945. *Tārīkh-i Masᶜūdī*. Ed. Q. Ghanī and ᶜA. A. Fayyād. Tehran. Russian tr. A. K. Arends, *Istoriya Mas'uda*. Moscow, 1969.
BELENITSKIY, A. M.; ISAKOV, A. I. 1982. Rannearabskaya nadpis' na cherepke iz Penjikenta. *Sovetskaya Arkheologia*, Vol. 19. Moscow/Leningrad.
BOWRING, R. 1992. Buddhist Translations in the Northern Song. *AM*, 3rd series V, pp. 79–93.
BROUGH, J. 1964. The Chinese Pseudo-translation of Ārya-Śūra's *Jātaka-mālā*. *AM*, N.S., Vol. 11, pp. 27–53.
BRYDER, P. 1985. *The Chinese Transformation of Manichaeism. A Study of Chinese Manichaean Terminology*. Lund.
BULLIET, R. W. 1972. *The Patricians of Nishapur. A Study in Medieval Islamic Social History*. Cambridge, Mass.
CH'EN, K. K. 1960. Some Problems in the Translation of the Chinese Buddhist Canon. *The Tsing Hua Journal of Chinese Studies*, 2, 1, pp. 178–88.
CLARK, L. V. 1997. The Turkic Manichaean Literature. In: P. Mirecki and J. BeDuhn (eds.), *Emerging from the Darkness: Studies in the Recovery of Manichaean Sources*, pp. 89–141. Leiden. (Nag Hammadi and Manichaean Studies.)
DEGENER, A. 1989. Zur Übersetzungstechnik in der khotanischen *Vajracchedikā*. *ZDMG*, Vol. 139, pp. 346–67.
EI[2], arts. Kāg͟had (Cl. Huart and A. Grohmann); Kuttāb (J. M. Landau); Madrasa (J. Pedersen and G. Makdisi); Nizām al-Mulk (H. Bowen and C. E. Bosworth).
ELVERSKOG, J. 1997. *The Uyghur Buddhist Literature*. Turnhout.

EMMERICK, R. E. 1983. Some Remarks on Translation Techniques of the Khotanese. In: K. Röhrborn and W. Veenker (eds.), *Sprachen des Buddhismus in Zentralasien. Vorträge des Hamburger Symposiums vom 2. Juli bis 5. Juli 1981*, pp. 17–26. Wiesbaden.

——. 1992. A Guide to the Literature of Khotan. *Studia Philologica Buddhica*. Tokyo. (Occasional Paper Series III.)

EMMERICK, R. E.; SKJÆRVØ, P. O. Buddhist Literature in Khotanese and Tumshuqese. In: *EIr*, Vol. 4, pp. 499b–505a.

EMMERICK, R. E.; VOROB'ËVA-DESJATOVSKAJA, M. I. 1995. *Saka Documents Text*, Vol. 3. London. (The St Petersburg Collections (CII).)

FASĪHĪ KHWĀFĪ. 1980. *Mujmal-i Fasihī*. Tashkent.

FORTE, A. 1995. *The Hostage An Shigao and His Offspring. An Iranian Family in China*. Kyoto.

FRANKE, H. 1996. *Chinesischer und tibetischer Buddhismus im China der Yüan-Zeit. Drei Studien: I. Tan-pa und sein chinesischer Tempel; II. Der Kanonkatalog der Chih-yüan-Zeit und seine Kompilatoren; III. Eine buddhistische Quelle über Kaiser Qubilai: Das Hung-chiao chi*. Munich. (Studia Tibetica Band III.)

FRYE, R. N. 1954. *The History of Bukhara*. Cambridge, Mass.

——. 1991. Les Sogdiens et les religions de l'Asie centrale. *Histoire et cultes de l'Asie centrale préislamique*, pp. 163–4. Paris.

FUCHS, W. 1930. Zur technischen Organisation der Übersetzungen buddhistischer Schriften ins Chinesische. *Asia Major*, Vol. 6, pp. 84–103.

——. 1946. Analecta zur mongolischen Übersetzungsliteratur der Yüan-Zeit. In: *Monumenta Serica*, Vol. 11, pp. 33–64.

GABAIN, A. VON. 1970. Historisches aus den Turfan-Handschriften. *Acta Orientalia*, Vol. 32, pp. 115–24.

GABORIEAU, M.; GRANDIN, N. (eds.). 1997. *Madrasa. La transmission du savoir dans le monde musulman*. Paris.

HANSEN, O. 1968. Die buddhistische Literatur der Sogdier. In: *Handbuch der Orientalistik. Iranistik*, Vol. 2, 1, pp. 83–90.

HINÜBER, O. V. 1989. Origin and Variety of Buddhist Sanskrit. In: *Dialectes dans les littératures indo-aryennes*. Paris.

HŌBŌGIRIN. 1978. *Dictionnaire encyclopédique du bouddhisme d'après les sources chinoises et japonaises*. Publié par l'Académie des Inscriptions et Belles-Lettres. Institut de France avec le patronage de l'Académie du Japon et le concours de l'École Française d'Extrême Orient et de la Maison Franco-japonaise de Tokyo, I–VII (1929–94), Répertoire du Canon bouddhique sino-japonais. Paris.

JAN YÜN-HUA. 1966. Buddhist Relations between India and Sung China. In: *History of Religions*, Vol. 6, pp. 24–42, 135–68.

JONG, J. W. de. 1968. *Buddha's Word in China*. Canberra. (Twenty-eighth George Ernest Morrison lecture in ethnology, 1967.)

JUWAYNĪ. 1911. *Tārikh-i Jahāngushāy*. Ed. M. M. Qazwīnī. Leiden/London.

KARASHIMA SEISHI. 1992. *The Textual Study of the Chinese Versions of the Saddharmapuṇḍarīkasūtra in Light of the Sanskrit and Tibetan Versions*. Tokyo.

——. 1994. *A Study of the Original Language of the Chang ahan jing – Focusing on an Analysis of the Transcriptions*. Tokyo.

KAY KĀWŪS B. ISKANDAR. 1951. *Qābūs-nāma*. English tr. R. Levy, *The Qābūs Nāma. A Mirror for Princes*. London.

KLIMKEIT, H.-J. 1986. Die Begegnung von Christentum, Gnosis und Buddhismus an der Seidenstraße. In: *Rheinisch-Westfälische Akademie der Wissenschaften Vorträge G 283*. Opladen.

——. 1990. Buddhism in Turkish Central Asia. *Numen*, Vol. 37, pp. 53–69.

LIEU, S. N. C. From Parthian into Chinese: Some Observations on the *Traktat Pelliot* (in press).

LIŠČÁK, V. 1995. The Early Penetration of Buddhism into China and the First Translators of Sūtras into Chinese. *Archív Orientální*, Vol. 63, pp. 341–9.

LITVINSKY, B. A. (ed.). 1992. *Vostochniy Turkestan v drevnosti i rannem srednevekov'e. Etnos, yazyki, religii*. Moscow.

LITVINSKY, B. A.; ZEIMAL, T. I. 1971. *Ajina-tepe*. Moscow.

LIVSHITS, V. A. 1970. Khorezmskiy kalendar' i ery drevnevo Khorezma. In: *Istoriya, kul'tura, yazyki narodov Vostoka*. Moscow.

MAKDISI, G. 1981. *The Rise of Colleges. Institutions of Learning in Islam and the West*. Edinburgh.

MAYER, A. L. 1992. *Xuanzangs Leben und Werk, Teil 1: Xuanzang. Übersetzer und Heiliger*. Wiesbaden.

MAYER, A. L.; RÖHRBORN, K. 1986. Der Wert der modernen Übersetzungen der chinesischen Hsüan-tsang-Biographie und die alttürkische Version dieses Textes. In: *UAJb*, N.F. 6, pp. 100–21.

MCRAE, J.; NATTIER, J. (eds.). *Buddhism Across Boundaries. The Sources of Chinese Buddhism* (forthcoming).

MEZ, A. 1922. *Die Renaissance des Islams*. Heidelberg. English tr. Khudah Bukhsh and D. S. Margoliouth, *The Renaissance of Islam*. Patna, 1937.

MIRBABAEV, A. K., 1992. *Etika Jalolidina Davoni*. Dushanbe.

MIZUNO, K. 1982. *Buddhist Sutras. Origin, Development, Transmission*. Tokyo.

NIZĀMĪ ᶜARŪDĪ SAMARQANDĪ. 1921. *Chahār maqāla*. Revised English tr. E. G. Browne, *The Four Discourses*. London.

NOBEL, J. 1937. *Suvarṇabhāsottamasūtra. Das Goldglanz-Sūtra. Ein Sanskrittext des Mahāyāna-Buddhismus*. Leipzig.

NORMAN, K. R. 1993. The Languages of Early Buddhism. In: *Premier colloque Etienne Lamotte (Bruxelles et Liège 24–27 septembre 1989)*, pp. 83–99. Louvain-La-Neuve.

OETKE, C. 1977. *Die aus dem Chinesischen übersetzten tibetischen Versionen des Suvarṇabhāsasūtra. Philologische und linguistische Beiträge zur klassifizierenden Charakterisierung übersetzter Texte*. Wiesbaden.

RASHĪD AL-DĪN. 1971. *Perepiski*. Moscow.

RÖHRBORN, K. 1996. *Die alttürkische Xuanzang-Biographie, VIII*. Wiesbaden. (Veröffentlichungen der Societas Uralo-Altaica 34.5.)

——. 1998. Šinko Šäli und die Organsiation der Übersetzungstätigkeit bei den Uiguren. In: N. Demir and E. Taube (eds.), *Turkologie heute – Tradition und Perspektive. Materialien der dritten Duetschen Turkologen-Konferenz Leipzig, 4–7 Oktober 1994*, pp. 255–60. Wiesbaden.

ROZENBERG, F. A. 1932. Sogdiyskie 'starye pis'ma'. In: *Izvestiya obshchestvennikh nauk Akademii nauk Tajikskoy SSR*, Vol. 7. Dushanbe.

SCHMIDT, K. T. 1983. Zum Verhältnis von Sanskritvorlage und tocharischer Übersetzung. Untersucht am Beispiel osttocharischer Sotratexte. In: K. Röhrborn and W. Veenker (eds.), *Sprachen des Buddhismus in Zentralasien. Vorträge des Hamburger Symposiums vom 2. Juli bis 5 Juli 1981*, pp. 125–31. Wiesbaden.

SIMS-WILLIAMS, N. 1981. The Sogdian Fragments of Leningrad. *BSOAS*, Vol. 44, pp. 231–40.

——. 1991. The Sogdian Fragments of Leningrad III: Fragments of the Xwastwanift. In: A. van Tongerloo and S. Giversen (eds.), *Manichaica Selecta. Studies Presented to Professor Julien Ries on the Occasion of His Seventieth Birthday*, pp. 323–8. Louvain.

SUNDERMANN, W. 1996. Iranian Manichaean Texts in Chinese Remake: Translation and Transformation. In: A. Cardona and L. Lanciotti (eds.), *Cina e Iran da Alessandro Magno alla dinastia Tang*, pp. 103–19. Florence.

THOMAS, W. 1977. Zum Problem der Übersetzung buddhistischer Sanskrittexte im Tocharischen. In: *Beiträge zur Indienforschung*, pp. 523–48. Wiesbaden.

——. 1989*a*. Der tocharische Übersetzer und seine Zweifel an der eigenen Leistung. *CAJ*, Vol. 21, pp. 259–94.

——. 1989*b*. Probleme der Übertragung buddhistischer Texte ins Tocharische. *AWL, Mainz*. Abhandl. der Geistes- und Sozialwiss. Kl. Jg., Nr. 10.

TSUKAMOTO, Z. 1985. *A History of Early Chinese Buddhism. From its Introduction to the Death of Hui-yüan*, tr. L. Hurwitz, Vol. 1. Tokyo/New York/San Francisco.

UTZ, D. 1978. *A Survey of Buddhist Sogdian Studies*. Tokyo. (Bibliographica Philologica Buddhica, Series Minor III.)

WELLER, F. 1928. Die Überlieferung des älteren buddhistischen Schrifttums. *AM*, Vol. 5, pp. 149–82.

YOSHIDA, Y. The Buddhist Literature in Sogdian. In: *EIr* (Supplement) (in press).

ZIEME, P. 1984. Indischer Schlangenzauber in uigurischer Überlieferung. In: *Tibetan and Buddhist Studies Commemorating the 200th Anniversary of the Birth of Alexander Csoma de Kőrös, hrsg. von L. Ligeti*, Vol. 2, pp. 425–40. Budapest.

——. 1991. *Die Stabreimtexte der Uiguren von Turfan und Dunhuang. Studien zur alttürkischen Dichtung*. Budapest.

——. 1992. *Religion und Gesellschaft im Uigurischen Königreich von Qočo. Kolophone und Stifter aus Zentralasien*. Opladen.

ZIEME, P.; KARA, G. 1978. *Ein uigurisches Totenbuch. Nāropas Lehre in uigurischer Übersetzung von vier tibetischen Traktaten nach der Sammelhandschrift aus Dunhuang. British Museum Or*, 8212 (109). Budapest.

ZÜRCHER, E. 1972. *The Buddhist Conquest of China*. Leiden.

CHAPTER 2

ABRAMOWSKI, L.; GOODMAN, A. E. 1972. *A Nestorian Collection of Christological Texts*. Cambridge.

ASMUSSEN, J. P. 1966. Der Manichäismus als Vermittler literarischen Gutes. *Temenos*, Vol. 2.

——. 1975. *Manichaean Literature*. Delmar, N.Y.

ASMUSSEN, J. P. The Sogdian and Uighur Turkish Christian Literature in Central Asia before the Real Rise of Islam: A Survey. In: L. A. Hercus et al. (eds.), *Indological and Buddhist Studies.* Canberra. (Volume in Honour of Professor J. W. de Jong on his Sixtieth Birthday.)

——. 1986. *Xuāstvānīft. Studies in Manichaeism.* Copenhagen.

ASMUSSEN, J. P; HAMILTON, J. 1965. *Manuscrits ouigours du IX–X siècle de Touen-Houang,* Vol. 1. Paris.

AZARPAY, G. 1975. Iranian Divinities in Sogdian Painting. In: *Monumentum H. S. Nyberg* I. (*Acta Iranica,* Vol. 4.) Leiden.

——. 1981. *Sogdian Painting. A Pictoral Epic in Oriental Art.* Berkeley/Los Angeles.

BANERJEE, P. 1970. Hindu Trinity from Central Asia. In: *Bulletin of the National Museum of India,* Vol. 2. New Delhi.

BANG, W. 1926. Türkische Bruchstücke einer nestorianischen Georgspassion. *Le Muséon,* Vol. 39.

BANG, W.; VON GABAIN, A. 1993. Ein uigurisches Fragment über den manichäischen Windgott. In: *Ungarische Jahrbücher,* Vol. 8, pp. 246–56, repr. from 1928. English tr. in: H.-J. Klimkeit, *Gnosis on the Silk Road,* 1993. San Francisco, Calif.

BANZAROV, D. The Black Faith, or Shamanism Among the Mongols. Tr. with some additional notes by J. Nattier and J. R. Krueger. *Mongolian Studies,* Vol. 7, pp. 53–91. Bloomington, Ind.

BARTHOLD, W. 1919. *Ulugbek i ego vryemya.* Petrograd. Repr. in *Sochineniya,* Vol. 2, Moscow, 1964. English tr. *Ulugh-Beg.* In: *Four Studies on the History of Central Asia,* tr. V. and T. Minorsky, Leiden, 1958.

——. 1928. *Turkestan down to the Mongol Invasion.* 2nd ed. tr. from the original Russian and revised by the author with the assistance of H. A. R. Gibb. 3rd ed., with an additional ch. tr. T. Minorsky, ed., with further addenda and corrigenda by C. E. Bosworth (1968). London.

——. 1968. The Burial Rites of the Turks and the Mongols. Tr. with a note on iconography by J. M. Rogers. *CAJ,* Vol. 12, pp. 195–227.

BAWDEN, C. R. 1958. On the Practice of Scapulomancy Among the Mongols. *CAJ,* Vol. 4, pp. 1–31. Wiesbaden.

BEAL, S. 1973. *The Life of Hiuen-Tsiang.* Repr. Delhi.

BELINIZKI, A. M.; BELOUS, D. W. 1980. *Mittelasien, Kunst der Sogden.* Leipzig.

BÖHLIG, A.; ASMUSSEN, J. P. 1980. *Die Gnosis III: Der Manichäismus.* Zürich.

BOYCE, M. 1979. *Zoroastrians. Their Religious Beliefs and Practices.* London.

——. 1991. *A History of Zoroastrianism,* Vol. 3. Leiden.

BOYLE, J. A. 1972. Turkish and Mongol Shamanism in the Middle Ages. *Folklore,* Vol. 83, pp. 177–93.

BROWDER, M. 1992. The Formulation of Manichaeism in Late Umayyad Islam. In: G. Wiessner and H.-J. Klimkeit, *Studia Manichaica.* Wiesbaden.

BRYDER, B. 1985. *The Chinese Transformation of Manichaeism. A Study of Chinese Manichaean Terminology.* Löberöd.

BUDGE, E. A. W. 1928. *The Monks of Kûblâi Khân.* London.

CHAVANNES, E.; PELLIOT, P. 1911–13. Un traité manichéen retrouvé en Chine. *JA.*

CHWOLSON, D. 1886. Syrische Grabinschriften aus Semirjetschie. *MAIS,* 7th Series, Vol. 34, No. 4. St Petersburg.

CHWOLSON, D. 1890. Syrische Grabinschriften aus Semirjetschie. *MAIS*, 7th Series, Vol. 37, No. 8.

——. 1897. *Syrisch-Nestorianische Grabinschriften aus Semirjetschie*. N.S. St Petersburg.

CLARK, L. V. 1982. The Manichaean Turkic *Pothi-Book*. *AoF*, Vol. 9.

CLAUSON, Sir G. 1961. Ak Beshim – Suyab. *JRAS*.

COLPE, C. 1954. *Der Manichäismus in der islamischen Tradition*. D.Phil. diss., Göttingen.

DABBS, J. A. 1963. *A History of the Discovery and Exploration of Chinese Turkestan*. The Hague.

DECRET, F. 1974. *Mani et la tradition manichéenne*. Paris.

DEWEESE, D. 1988. The Eclipse of the Kubraviya in Central Asia. *Iranian Studies*, Vol. 21, pp. 45–83.

——. 1994. *Islamization and Native Religion in the Golden Horde. Baba Tükles and Conversion to Islam in Historical and Epic Tradition*. University Park, Pa.

EI², art. al-Hāri<u>th</u> b. Suray<u>dj</u> (M. J. Kister).

ELIADE, M. 1951. *Le chamanisme et les techniques archaïques de l'extase*. Paris.

EMMERICK, R. E. 1992. *A Guide to the Literature of Khotan*. 2nd ed. Tokyo.

ENOKI, K. 1984. The Nestorian Christianism in China in Medieval Time according to Recent Historical and Archaeological Researches. *L'Oriente Cristiano*, pp. 45–71. Rome.

FRANKE, O. 1907. *Eine chinesische Inschrift aus Idiqut Šahri bei Turfan (Turkistan)*. Berlin.

FUCHS, W. 1926. Das Turfan-Gebiet. Seine äußeren Geschicke bis in die T'ang-Zeit. *Ostasiatische Zeitschrift*, Vol. 13.

——. 1938. Huei-ch'aos Pilgerreise durch Nordwest-Indien und Zentralasien um 726. *SPAW*, Vol. 30.

FUJIEDA, A. 1969. The Tunhuang Manuscripts. A General Description: Part I. *Zinbun*, Vol. 9, pp. 1–32; Part II. *Zinbun*, Vol. 10.

GABAIN, VON A. 1959. Steppe und Stadt im Leben der ältesten Türken. *Isl.*, Vol. 29.

——. 1961. Das uigurische Königreich von Chotscho 850–1250. *Sitzungsberichte der Deutschen Adademie der Wissenschaften zu Berlin, Klasse für Sprache, Literatur und Kunst*, Vol. 5. Berlin.

——. 1973. *Das Leben im uigurischen Königreich von Qočo (850–1250)*. Wiesbaden. 2 parts.

——. 1979. Die Qočo-Uiguren und die nationalen Minderheiten. In: G. Hazai and P. Zieme (eds.), *Sprache, Geschichte und Kultur der altaischen Völker*. Berlin.

GARDINER, I. 1993. The Manichaean Community at Kellis. Progress Report. *The Manichaean Studies Newsletter*, published by the International Association of Manichaean Studies. Louvain.

GENG SHIMIN; KLIMKEIT, H.-J. 1985. Zerstörung manichäischer Klöster in Turfan. *ZAS*, Vol. 18.

——. 1988. *Das Zusammentreffen mit Maitreya*, Vol. 1. Wiesbaden.

GIBB, H. A. R. 1923. *The Arab Conquests in Central Asia*. London.

GILES, L. 1957. *Descriptive Catalogue of the Chinese Manuscripts from Dunhuang in the British Museum*. London.

GILLMANN, I.; KLIMKEIT, H.-J. 1999. *Christians in Asia before 1500*. Surrey.

GOLZIO, K.-H. 1984. *Kings, Khans and other Rulers of Early Central Asia.* Cologne.
GROENBECH, K. 1939–40. Turkish Inscriptions from Inner Mongolia. *Monumenta Serica*, Vol. 4.
HAGE, W. 1977. Non-chalzedonensische Kirchen: Apostolische Kirchen des Ostens (Nestorianer). In: F. Heyer, *Konfessionskunde*. Berlin/New York.
——. 1978. Der Weg nach Asien: Die ostsyrische Missionskirche. In: K. Schäferdiek (ed.) *Kirchengeschichte als Missionsgeschichte*, Bd. II: *Die Kirchen des frühen Mittelalters*, pp. 360–93. Munich.
——. 1982. Religiöse Toleranz in der nestorianischen Asienmission. In: T. Rendtorff (ed.), *Glaube und Toleranz*, pp. 99–112. Gütersloh.
HALM, H. 1974. *Die Ausbreitung der šāfiʿitischen Rechtsschule von den Anfangen bis zum 8/14. Jahrhundert.* Wiesbaden.
HALOUN, H.; HENNING, W. B. 1952. The Compendium of the Doctrines and Styles of the Teaching of Mani, the Buddha of Light. *AM*, N.S., Vol. 3.
HAZAI, G. 1976. Ein uigurisches Kolophon zu einem Avalokiteśvara-Lobpreis. In: *Tractata Altaica* (Felicitation Volume for Denis Sinor). Wiesbaden.
HENNECKE, E.; SCHNEEMELCHER, W. 1965. *New Testament Apocrypha*, Vol. 2. Tr. R. McL. Wilson. London.
HENNING, W. B. 1943–6. The Book of Giants. *BSOAS*, Vol. 11.
——. 1948. The Date of the Sogdian Ancient Letters. *BSOAS*, Vol. 12.
——. 1956. Notes and Communications: Surkh Khotal. *BSOAS*, Vol. 18, pp. 366–7.
——. 1960. The Bactrian Inscription. *BSOAS*, Vol. 23.
——. 1965*a*. The Choresmian Documents. *AM* N.S., Vol. 9/2.
——. 1965*b*. A Sogdian God. *BSOAS*, Vol. 28.
HOFFMAN, H. 1950. *Quellen zur Geschichte der tibetischen Bon-Religion.* Wiesbaden.
HOPKIRK, P. 1980. *Foreign Devils on the Silk Road.* London.
HUMBACH, H. 1975*a*. Mithra in the Kušāna Period. In: J. R. Hinnells (ed.), *Mithraic Studies* I, Manchester.
——. 1975*b*. Vayu, Śiva und der Spiritus Vivens im ostiranischen Synkretismus. In: *Monumentum Nyberg*, Vol. I (*Acta Iranica* 4), pp. 397–408. Leiden.
——. 1980. Die sogdischen Inschriftenfunde am oberen Indus (Pakistan). In: Deutsches Archäologisches Institut, Bonn, *Allgemeine und Vergleichende Archäologie: Beiträge*, Vol. 2. Munich.
HUNTER, E. C. D. 1989–91. The Conversion of the Kerait to Christianity in A.D. 1007. *ZAS*, Vol. 22.
——. 1992. Syriac Christianity in Central Asia. *ZRGG*, Vol. 44.
HUTTER, M. 1988. *Mani und die Sasaniden.* Innsbruck.
IBN AL-NADĪM. 1970. The Fihrist of al-Nadim. Tr. B. Dodge. New York/London. 2 vols.
AL-KAFAWĪ, Mahmūd b. Sulaimān. *Katā'ib aʿlām akhyār fuqahā' madhhab al-Nuʿmān al-Mukhtār.* Ms. Oriental Institute of the Uzbek Academy of Sciences, Tashkent, No. 2929, fols. 76b–111b.
KARIMOV, E. E. 1991. Some Aspects of the Political, Religious and Philosophical Practice of the Naqshbandiyya Tarīqa in Transoxania in the Fifteenth Century. (In Russian.) In: *Iz Istorii Sufizma: istochniki i sotsial'naya praktika.* Tashkent.

KARMAY, S. G. 1975. A General Introduction to the History and Doctrines of Bon. In: *Memoirs of the Research Department of the Toyo Bunko*, Vol. 33, pp. 171–218. Tokyo.

AL-KĀSHIFĪ, Fakhr al-Dīn ʿAlī. 1905. *Rashahāt ʿayn al-hayāt*. Lucknow.

KERN K. 1965. *The Saddharma-Puñarīka or the Lotus of the True Law* (1884, tr.), repr. Delhi.

KHALILOV, A. B. 1973–9. The Biography of al-Zamakhsharī Compiled by his Contemporaries [sic] al-Andarasbanī. (In Russian.) In: *Pis'mennye pamyatniki Vostoka. Istoriko-filologicheskie issledovaniya. Ezhegodnik*. Moscow.

KLIMKEIT, H.-J. 1980. Hindu Deities in Manichaean Art. *ZAS*, Vol. 14.

——. 1982. *Manichaean Art and Calligraphy*. Leiden.

——. 1986. Der Untergang des Manichäismus in Ost und West. In: H. Zinser (ed.), *Der Untergang von Religionen*. Berlin.

——. 1990*a*. *Die Seidenstrasse*. 2nd ed. Cologne.

——. 1990*b*. The Donor at Turfan. *Silk Road Art and Archaeology* (Journal of the Institute of Silk Road Studies), Vol. 1. Kamakura.

——. 1993. *Gnosis on the Silk Road*. San Francisco, Calif.

——. 1994. Christian Art on the Silk Road. In: Th. W. Gaehtgens, *Künstlerischer Austausch/Artistic Exchange* (Akten des XXVIII. Kongresses für Kunstgeschichte, Berlin, 15–20 Juli 1992). Berlin.

KOENEN, L.; RÖMER, C. 1988. *Der Kölner Mani-Codex. Über das Werden seines Leibes*. Opladen.

KOSHELENKO, G. 1966. The Beginnings of Buddhism in Margiana. *AAHung*, Vol. 14.

KOTWICZ, W. 1927. Sur les modes d'orientation en Asie Centrale. *Rocznik Orientalistyczny*, Vol. 5. Warsaw.

LAMOTTE, E. 1988. *A History of Indian Buddhism*. Louvain-la-Neuve.

LAUT, J. P. 1986. *Der frühe türkische Buddhismus und seine literarischen Denkmäler*. Wiesbaden.

LE COQ, A. VON. 1973. *Die buddhistische Spätantike in Mittelasien: II. Die manichäischen Miniaturen*. Repr. Graz.

——. 1979. *Chotscho*. Repr. Graz.

LIEU, S. N. C. 1992. *Manichaeism in the Later Roman Empire and Medieval China*. 2nd ed. Tübingen.

LITVINSKY, B. A.; ZEIMAL, T. I. 1971. *Adzina-Tepa*. Moscow.

LIU MAU-TSAI. 1969. *Kutscha und seine Beziehungen zu China vom 2. Jh. v. Chr. bis zum 6. Jh. n. Chr.* Wiesbaden. 2 vols.

MARÓTH, M. 1991. Die syrischen Handschriften in der Turfan-Sammlung. In: H. Klengel and W. Sundermann (eds.), *Ägypten, Vorderasien, Turfan*. Berlin.

MAUE, D.; RÖHRBORN, K. 1985. Ein 'buddhistischer Katechismus' in alttürkischer Sprache und tibetischer Schrift. I. *ZDMG*, Vol. 135.

MENSCHING, G. 1976. *Structures and Patterns of Religion*. Delhi.

MERKELBACH, R. 1986. *Mani und sein Religionssystem*. Opladen.

MODE, M. 1989. Frühe sogdische Kultbilder. *Archäologische Mitteilungen aus Iran*, Vol. 22.

——. 1991. Das Enthüllungsritual der versteckten Göttin. In: *Hallesche Beiträge zur Orientwissenschaft*, Vol. 16.

MODE, M. 1991–2. Sogdian Gods in Exile. Some Iconographic Evidence from Khotan in the Light of Recently Excavated Material from Sogdiana. *Silk Road Art and Archaeology* (Journal of the Institute of Silk Road Studies), Vol. 2. Kamakura.

MORENZ, S. 1992. *Egyptian Religion.* Tr. A. E. Keep. Ithaca/New York.

MORI, M. 1981. The T'u-chüeh Concept of Sovereign. *Acta Asiatica*, Vol. 41, pp. 47–75.

MÜLLER, F. W. K. 1910. Uigurica II. *APAW*, Vol. 3.

MÜLLER, F. W. K.; LENTZ, W. 1934. Soghdische Texte II. *SPAW.*

MUMINOV, A. 1993. New Approaches in the Study of the History of the Yasawiyya Brotherhood. (In Russian.) In: *Obshchestvennye nauki v Uzbekistane*, No. 67, pp. 278–519.

MURAYAMA, S. 1964. Eine nestorianische Grabinschrift in türkischer Sprache aus Zayton. *UAJb*, Vol. 35, pp. 394–6.

——. 1984. Über die nestorianischen Grabinschriften in der Inneren Mongolei und in Südchina. *L'Oriente Cristiano*. Rome.

OORT, J. VAN. 1991. *Jerusalem and Babylon. A Study into Augustine's City of God and the Sources of His Doctrine of the Two Cities.* Leiden.

PAUL, J. 1990. Scheiche und Herrscher im Khanat Čagatay. *Isl.*, Vol. 67, pp. 278–321.

PIGOULEVSKAYA, N. V. 1935–40. Fragments syriaques et syro-turcs de Ḫara-Ḫoto et de Tourfan. *Revue de l'Orient Chrétien*, Vol. 30.

PUECH, H.-C. 1949. *Le Manichéisme. Son fondateur, sa doctrine.* Paris.

REEVES, J. C. 1992. *Jewish Lore in Manichaean Cosmogony. Studies in the Book of Giants Traditions.* Cincinnati, Ohio.

ROSENFIELD, J. M. 1967. *The Dynastic Arts of the Kushans.* Berkeley/Los Angeles, Calif.

ROUX, J.-P. 1958. Tängri. Essai sur le ciel-dieu des peuples altaïques. *Revue de l'histoire des religions*, Vol. 154. Paris.

——. 1963. *La mort chez les peuples altaïques anciens et médiévaux*. Paris.

——. 1966. *Faune et flore sacrées dans les sociétés altaïques.* Paris.

SACHAU, E. 1919. Die Ausbreitung des Christentums in Asien. *APAW*, Vol. 1. Berlin.

SAEKI, P. Y. 1951. *The Nestorian Documents and Relics in China.* 2nd ed. Tokyo.

SCARCIA-AMORETTI, B. S. 1975. Sects and Heresies. In: R. N. Frye (ed.), *The Cambridge History of Iran*, V: *From the Arab Invasion to the Saljuqs*, pp. 481–519. Cambridge.

SCHLEGEL, G. 1896. *Die chinesische Inschrift auf dem uigurischen Denkmal in Kara Balgassun.* Helsinki.

SCHLINGLOFF, D. 1988. *Studies in the Ajanta Paintings.* Delhi.

SCHLUMBERGER, D. 1964. Eine neue griechische Ashoka-Inschrift. In: F. Altheim and J. Rehork (eds.), *Der Hellenismus in Mittelasien*, pp. 406–17. Darmstadt.

SCHMIDT-GLINTZER, H. 1987*a*. *Chinesische Manichäica.* Wiesbaden.

——. 1987*b*. Das buddhistische Gewand des Manichäismus. Zur buddhistischen Terminologie in den chinesischen Manichäica. In: W. Heissig and H.-J. Klimkeit (eds.), *Synkretismus in den Religionen Zentralasiens.* Wiesbaden.

SCHWAIGERT, W. 1989. *Das Christentum in Khūzistān.* D.Theol. thesis, Marburg.

SEGAL, J. B. 1970. *Edessa, 'The Blessed City'.* Oxford.

SIMS-WILLIAMS, N. 1989. The Sogdian Inscriptions of the Upper Indus: A Preliminary Report. In: K. Jettmar (ed.), *Antiquities of Northern Pakistan. Reports and Studies*, Vol. 1. Mainz.

SIMS-WILLIAMS, N. 1992. Sogdian and Turkish Christians in the Turfan and Tun-huang Manuscripts. In: A. Cadonna (ed.), *Turfan and Tun-huang. The Texts. Encounter of Civilizations on the Silk Route.* Florence.

SINOR, D. 1982. The Legendary Origin of the Türks. In: Egle Victoria Žygas and Peter Voorheis (eds.), *Folklorica: Festschrift für Felix J. Oinas.* Bloomington, Ind.

ŚKODA, V. V. 1992. Ein Śiva-Heiligtum in Pendžikent. *Archäologische Mitteilungen aus Iran*, Vol. 25.

SNELLGROVE, D. L. 1967. *The Nine Ways of Bon: Excerpts from the Gzibrjid.* London.

STAWISKI, B. 1979. *Mittelasien. Kunst der Kushan.* Leipzig.

STEIN, M. A. 1921. *Serindia*, Vols. 3 and 4. Oxford. Repr. Delhi, 1980.

TAMURA. J. 1973. The Legend of Origin of the Mongols and Problems Concerning their Migration. *Acta Asiatica*, Vol. 24. Tokyo.

TAUBE, M. 1989. *Geheime Geschichte der Mongolen.* Munich.

TEKIN, S. 1980. *Maitrisimit nom bitig* I. Berlin.

TEKIN, T. 1968. *A Grammar of Orkhon Turkic.* Bloomington, Ind.

THOMAS, W. 1956. Die tocharische Literatur. In: W. von Einsiedel (ed.), *Die Literaturen der Welt und ihre schriftliche und mündliche Überlieferung.* Zürich.

TSUI CHI, 1943–6. Mo Ni Chiao Pu Tsan. (The Lower [Second?] Section of the Manichaean Hymns). *BSOAS*, Vol. 11.

TUCCI, G.; HEISSIG, W. 1970. *Die Religionen Tibets und der Mongolei.* Stuttgart.

UTZ, D. 1978. *A Survey of Buddhist Sogdian Studies.* Tokyo.

WALDSCHMIDT, E. 1932. *Bruchstücke buddhistischer Sūtras aus dem zentralasiatischen Sanskritkanon.* Leipzig.

——. 1944. *Die Überlieferung vom Lebensende des Buddha.* Göttingen.

——.1989. A Note on Names and Surnames of Indra in a Fragment of a Buddhist Canonical Sanskrit Text from Central Asia. In: H. Bechert and P. Kieffer-Pülz (eds.), *Ausgewählte Kleine Schriften.* Stuttgart.

WATT, W. M. 1973. *The Formative Period of Islamic Thought.* Edinburgh.

WIDENGREN, G. 1961. *Mani und der Manichäismus.* Stuttgart. English tr., *Mani and Manicheism.* London.

WILKINSON, C. K. 1969. Christian Remains from Nishapur. In: O. Aslanapa and R. Naumann (eds.), *Forschungen zur Kunst Asiens (In Memoriam Kurt Erdmann).* Istanbul.

WITTFOGEL, K. A.; FENG CHAI-SHENG 1949. *History of Chinese Society Liao (907–1125).* Philadelphia, Pa.

YALDIZ, M. 1987. *Archäologie und Kunstgeschichte Chinesisch-Zentralasiens (Xinjiang).* Leiden.

YAZDĪ, Sharaf al-Dīn ᶜAlī. 1972. *Zafar-nāma.* Facs. ed. A. Urunbaev. Tashkent.

ZIEME, P. 1992*a*. *Religion und Gesellschaft im Uigurischen Königreich von Qočo. Kolophone und Stifter des alttürkischen buddhistischen Schrifttums aus Zentralasien.* Opladen.

——. 1992*b*. Manichäische Kolophone und Könige. In: G. Wiessner and H.-J. Klimkeit (eds.), *Studia Manichaica.* Wiesbaden.

Chapter 3

There is no single specific study on *hadīth* and the religious sciences in eastern Iran and Central Asia during these centuries of the florescence and then comparative stagnation of Islamic culture there. More specifically, see such articles in *EI*[2] as Hadīth, Kalām, Musannaf, Musnad, Sahīh, Sunan, Sunna, Tafsīr; and articles in *EIr*; the *Encyclopaedia of Iran and Islam* and the *Great Islamic Encyclopaedia*, Tehran; *Islâm Ansiklopedisi* and *Türkiye Diyanet Vakfi Islâm Ansiklopedisi*, Istanbul; and the *Urdu Encyclopaedia of Islam*, Lahore. The following general works contain relevant material on *hadīth* and theology.

ABDUS SATTAR, M. 1972. Al-Hīrī's *Kifāyat al-tafsfīr*. A Rare Manuscript on Exegesis of the Qur'ān. *Islamic Studies*, Vol. 16/2, pp. 117–30.

——. 1974. *Al-Hīrī's Life and Works with an Edition of his Wujūh al-Qur'ān*. Unpublished PhD thesis. Cambridge.

——. 1994. *Kifāyat al-tafsīr* of Nīshāpūrī. A Rare Manuscript. *IC*, Vol. 68, pp. 41–56.

AGIUS, D. A. 1982. Some Bio-bibliographical notes on Abu 'l-Qāsim Mahmūd b. ᶜUmar al-Zamakhsharī. *Al-ᶜArabiyya*, Vols. 1–2, pp. 108–30.

ANAWATI, G. C. 1962. Fakhr al-Dīn al-Rāzī. *Tamhīd li-dirāsat hayātihi wa-mu'allafātihi*. In: *Mélanges Taha Hussein*, pp. 193–234. Cairo.

——. 1963. Eléments de biographie. In: *Mélanges d'orientalisme offerts à H. Massé*, pp. 1–10. Tehran.

ARAZI, A. 1979. Le cas d'Abū Djaᶜfar al-Zawzānī, un poète type du milieu khurāsānien. In: *Studia orientalia memoriae D. H. Baneth dedicata*, pp. 275–305. Jerusalem.

ARNALDEZ, R. 1960. L'œuvre de Fakhr al-Dīn al-Rāzī commentateur du Coran et philosophe. *Cahiers de Civilisation médiévale*, Vol. 3, pp. 307–23.

BEESTON, A. F. I. 1963. *Baydāwī's Commentary on Sūrah 12 of the Qur'ān*. Text accompanied by an interpretative rendering and notes. Oxford.

BOSWORTH, C. E. 1960. The Rise of the Karāmiyyah in Khurasan. *MW*, Vol. 50, pp. 5–14.

——. 1961. The Early Islamic History of Ghūr. *CAJ*, Vol. 6, pp. 116–33.

BÖWERING, G. 1991. The Qur'ān Commentary of al-Sulamī. In: A. B. Hallaq and D. P. Little (eds.), *Islamic Studies Presented to Charles J. Adams*, pp. 41–56. Leiden.

——. (ed.). 1995. *The Minor Qur'ān Commentary of Abū ᶜAbd al-Rahmān Muhammad b. al-Husayn al-Sulamī*. Beirut.

——. 1996. The Major Sources of Sulamī's Minor Qur'ān Commentary. *Oriens*, Vol. 35.

BROCKELMANN, C. 1937–49. *Geschichte der arabischen Literatur*. Leiden. 2 vols. and 3 vols. Supplement.

BULLIET, R. W. 1972. *The Patricians of Nishapur. A Study in Medieval Islamic Social History*. Cambridge, Mass.

CALVERLEY, E. E. 1963. Al-Baydāwī's *Matāliᶜ al-anzār*. A Systematic Theology of Islam. *MW*, Vol. 53, pp. 292–7.

CRONE, P. 1997. A Note on Muqātil b. Hayyān and Muqātil b. Sulaymān. *Isl.*, Vol. 74.

DAIBER, H. 1995. *The Islamic Concept of Belief in the 4th/10th Century*. Tokyo.

EI[2], arts. Ḥadīth (J. Robson); Ibn Fūrak (W. M. Watt); al-Isfarāyinī (W. Madelung); Karrāmiyya (C. E. Bosworth).

EIr, 1985, art. Abu 'l-Qāsem al-Kaᶜbī (J. Van Ess).

EIr, 1996. *Die Erkenntnislehre des ʿAdudaddīn al-Īcī.* Wiesbaden.
GILLIOT, CL. 1982. La sourate al-Baqara dans le Commentaire de Tabarī. Doctoral thesis, University of Paris III. Paris.
——. 1985. Portrait 'mythique' d'ibn Abbās. *Arabica*, Vol. 32, pp. 127–84.
——. 1987. Traduire ou trahir at-Tabarī. *Arabica*, Vol. 34.
——. 1988. La formation intellectuelle de Tabari. *JA*, Vol. 276, pp. 203–44.
——. 1989. Livres anciens. *MIDEO*, Vol. 19.
——. 1990*a*. *Exégèse, langue et théologie en Islam. L'exégèse coranique de Tabari.* Paris.
——. 1990*b*. Les débuts de l'exégèse coranique. *Revue du Monde Musulman et de la Méditerranée*, Vol. 58, pp. 81–100.
——. 1991. Muqātil, grand exégète, traditionniste et théologien maudit. *JA*, Vol. 279, pp. 39–92.
——. 1992. Quand la théologie s'allie à l'histoire : triomphe et échec du rationalisme musulman à travers l'œuvre d'al-Ǧuwaynī. *Arabica*, Vol. 39.
——. 1993*a*. Exégèse et sémantique institutionnelle dans le Comentaire de Tabari. *SI*, Vol. 77, pp. 41–94.
——. 1993*b*. Récit, mythe et histoire chez Tabari. Une vision mythique de l'histoire universelle. *MIDEO*, Vol. 21, pp. 277–89.
——. 1994*a*. Mythe, récit, histoire du salut dans le Commentaire coranique de Tabari. *JA*, Vol. 282, pp. 237–70.
——. 1994*b*. Le traitement du *hadīṯ* dans le *Tahḏīb al-āṯār* de Tabari. *Arabica*, Vol. 41, pp. 309–51.
——. 1999. L'exégèse du Coran en Asie centrale et au Khorasan. *SI*, Vol. 89, pp. 129–64.
GIMARET, D. 1980. *Théories de l'acte humain en théologie musulmane.* Paris/Louvain.
——. 1985. Un document majeur pour l'histoire du kalām: le *Muǧarrad maqālāt al-Ašʿarī* d'Ibn Fūrak. *Arabica*, Vol. 32.
——. 1989. Cet autre théologien sunnite: Abū 'l-ʿAbbās al-Qalānisī. *JA*, Vol. 277.
——. 1991. Pour un rééquilibrage des études de théologie musulmane. *Arabica*, Vol. 38, pp. 11–18.
——. 1994. *Une lecture muʿtazilite du Coran. The Tafsīr of Abū ʿAlī al-Jubbā'i, Partially Reconstituted.* Louvain/Paris.
GOLDFELD, I. 1978. Muqātil ibn Sulaymān. *Bar Ilan Arabic and Islamic Studies*, Vol. 2, pp. 13–30.
——. 1984. *Qur'ānic Commentary in the Eastern Islamic Tradition of the First Four Centuries of the Hijra: An annotated edition of the preface of al-Thaʿlabī's 'Kitāb al-Kashf wa'l-bayān ʿan tafsīr al-Qur'ān'*. Ed. I. Goldfeld. Acre.
GOLDZIHER, I. 1888–9. *Muhammedanische Studien*, Vol. 2: *Ueber die Entwicklung des Hadîth.* Halle/Saale. 2 vols. English tr. C. R. Barber and S. M. Stern, *On the Development of the Hadīth.* London, 1971. French tr. L. Bercher, *Les traditions de l'Islam.* Paris, 1955.
——. 1920. *Die Richtungen der islamischen Koranauslegung.* Leiden.
GÖTZ, M. 1965. Māturīdī und sein Kitāb Ta'wīlāt al-Qur'ān. *Isl.*, Vol. 41, pp. 27–70.
GUILLAUME, A. 1921. *The Traditions of Islam.* Oxford.
HORST, H. 1953. Zur Überlieferung im Korankommentar at-Tabarīs. *ZDMG*, Vol. 103, pp. 290–307.

HŪFĪ, A. 1966. *Al-Zamakhsharī*. Cairo.
HUQŪQĪ, ᶜA. 1967. *Tahqīq dar tafsīr-i Abū Futūh Rāzī*. Tehran.
IBN AL-NADĪM, MUHAMMAD B. ISHĀQ. 1970. *Al-Fihrist*. English tr. B. Dodge, *The Fihrist of al-Nadīm*. New York/London. 2 vols.
JOMIER, J. 1977. Les Mafātīh al-ghayb de l'Imām Fakhr al-Dīn al-Rāzī, quelques dates, lieux, manuscrits. *MIDEO*, Vol. 13, pp. 467–85.
——. 1980. Qui a commenté l'ensemble des sourates al-ᶜAnkabūt à Yāsīn (29–36) dans le 'Tafsīr al-kabīr' de l'Imām Fakhr al-Dīn al-Rāzī? *IJMES*, Vol. 11, pp. 476–85.
——. 1982. Fakhr al-Dīn al-Rāzī et les commentaires du Coran plus anciens. *MIDEO*, Vol. 15, pp. 145–72.
LAGARDE, M. 1996. *Index du Grand Commentaire coranique de Fakhr al-Dīn al-Rāzī*. Leiden.
LE STRANGE, G. 1905. *The Lands of the Eastern Caliphate. Mesopotamia, Persia and Central Asia from the Moslem Conquest to the Time of Timur*. Cambridge.
LUFTI, I. 1979. Al-Baydāwī's Life and Works. *Islamic Studies*, Vol. 18/4, pp. 311–21.
MACDONALD, D. B. 1903. *The Development of Muslim Theology, Jurisprudence and Constitutional Theory*. New York.
MADELUNG, W. 1965. *Der Imam al-Qāsim ibn Ibrāhīm und die Glaubenslehre der Zaiditen*. Berlin.
——. 1968. The Spread of Māturīdism Among the Turks. In: *Actas do IV Congresso de Estudos Arabes e Islâmicos, Coimbra–Lisboa*, 1968, pp. 109–68.
——. 1976. Aš-Šahrastānīs Streitschrift gegen Avicenna und ihre Widerlegung durch Nasīr ad-Dīn at-Tūsī. In: *Akten des VII Kingresses für Arabistik und Islamwissenschaft, Göttingen, 1974*, pp. 250–9. Göttingen.
——. 1982. The Early Murji'a in Khurāsān and Transoxiana and the Spread of Hanifism. *Isl.*, Vol. 59, pp. 32–9.
——. 1985. *Religious Schools and Sects in Medieval Islam*. London.
——. 1986. The Theology of al-Zamakhsharī. In: *Actas del XII Congresso de la U.E.A.I. (Malaga, 1984)*, pp. 485–95. Madrid.
——. 1987. Der Kalām. In: H. Gätje (ed.), *Grundriss der arabischen Philologie, II: Literaturwissenschaft*, pp. 326–37. Wiesbaden.
——. 1988. *Religious Trends in Early Islamic Iran*. Albany.
——. 1990. Imām al-Qāsim ibn Ibrāhīm and Mu'tazilism. In: *On Both Sides of al-Mandab, Mélanges Oscar Löfgren* (13 May 1988), Vol. 2, pp. 39–48. (Swedish Research Institute in Istanbul Transactions.)
MASSÉ, H. 1930. Le Tafsīr d'Abu'l-Futūh Rāzī. In: *Mélanges William Marçais*, pp. 243–9. Paris.
MONNOT, G. 1981–90. Islam: exégèse coranique. In: *Annuaire. Résumé des conférences et travaux*, Ecole Pratique des Hautes Etudes, Vᵉ section, Vol. 89, pp. 369–73; Vol. 90, pp. 273–8; Vol. 91, pp. 317–18; Vol. 98, pp. 280–2.
——. 1982–3. Introduction à l'exégèse duodécimaine. In: *Annuaire. Résumé des conférences et travaux*, Ecole Pratique des Hautes Etudes, Vᵉ section, Vol. 91, pp. 309–18.
——. 1995. Les controverses théologiques dans l'œuvre de Shahrastānī. In: A. Le Boulluec (ed.), *La controverse religieuse et ses formes*, pp. 281–96. Paris.

NAGEL, T. 1988. *Die Festung des Glaubens. Triumph und Scheitern des islamischen Rationalismus im 11 Jahrhundert.* Munich.

——. *Geschichte der islamischen Theologie.* Munich.

NÖLDEKE, T. 1919. *Geschichte des Qorans*, Vol. 2. Ed. F. Schwally. Leipzig.

ORMSBY, L. 1984. *Theodicy in Islamic Thought. The Dispute Over al-Ghazālī's 'Best of all Possible Worlds'.* Princeton, N.J.

RADTKE, B. 1986. Theologen und Mystiker in Ḫurāsān und Transoxanien. *ZDMG*, Vol. 136, pp. 536–69.

RAHMAN, M. M. 1981. *An Introduction to al-Maturidi's Ta'wilat ahl al-sunna.* Dacca.

RIPPIN, A. 1994. Tafsir Ibn ʿAbbās and Criteria for Dating Early Tafsīr Texts. *Jerusalem Studies in Arabic and Islam*, Vol. 18, pp. 38–83.

ROSENTHAL, F. 1989. Abū Zayd al-Balkhī on Politics. In: C. E. Bosworth et al. (eds.), *The Islamic World from Classical to Modern Times. Essays in Honour of Bernard Lewis*, pp. 287–301. Princeton, N.J.

RUDOLPH, U. 1997*a*. *Al-Māturīdī und die sunnitische Theologie in Samarkand.* Leiden.

——. 1997*b*. Das Entstehen der Māturīdiyya. *ZDMG*, Vol. 147, pp. 394–404.

SCHACHT, J. 1931. *Der Islam mit Ausschluss des Qor'ans.* Tübingen.

——. 1950. *The Origins of Muhammadan Jurisprudence.* Oxford.

SCHOELER, G. 1990. *Arabische Handschriften*, Vol. 2. Stuttgart.

SEZGIN, F. 1967. *Geschichte des arabischen Schrifttums*, Vol. 1: *Qur'ānwissenschaften, etc. bis ca. 430 H.* Leiden.

AL-SHAHRASTANI. 1986. *Livre des religions et des sectes*, Vol. 1. Tr. D. Gimaret and G. Monnot. Paris/Louvain.

VAN ESS, J. 1975. *Zwischen Hadīṯ und Theologie.* Studien zum Entstehen prädestinatianischer Überlieferung. Berlin/New York.

——. 1978. Biobibliographische Notizen zur islamischen Theologie. *Die Welt des Orients*, Vol. 9, pp. 261–70.

——. 1980. *Ungenützte Texte zur Karrāmiyya. Eine Materialsammlung.* Heidelberg.

——. 1985. Abu 'l Layth Samarqandī. In: *EIr*, Vol. 1, p. 333.

——. 1991–7. *TG* I–VI. *Theologie und Gesellschaft im 2. und 3. Jahrhundert Hidschrah. Eine Geschichte des religiösen Denkens im frühen Islam.* Berlin/New York. 6 vols.

VERSTEEGH, C. H. M. 1993. *Arabic Grammar and Qur'ānic Exegesis in Early Islam.* Leiden.

WATT, W. M. 1948. *Free Will and Predestination in Early Islam.* London.

——. 1962. *Islamic Philosophy and Theology.* Edinburgh.

——. 1973. *The Formative Period of Islamic Thought.* Edinburgh.

WEINBERGER, J. The Authorship of Two Twelfth Century Transoxanian Biographical Dictionaries. *Arabica*, Vol. 23, pp. 369–82.

WELLHAUSEN, J. 1901. *Die religiös-politischen Oppositionsparteien im altern Islam.* Berlin. English tr. R. C. Ostle and S. M. Walzer, *The Religio-political Factions in Early Islam.* Amsterdam, 1975.

WENSINCK, A. J. 1932. *The Muslim Creed. Its Genesis and Historical Development.* Cambridge.

YĀQŪT AL-RŪMĪ. 1993. *Muʿjam al-udabā'.* Ed. I. Abbās. Beirut. 7 vols.

Chapter 4

ARNOLD, Sir Thomas W. 1924. *The Caliphate*. Oxford.

BARTHOLD, W. 1935. *Zwölf Vorlesungen über die Geschichte der Türken Mittelasiens*. Berlin. French tr. M. Donskis, *Histoire des Turcs d'Asie Centrale*. Paris, 1945.

——. 1968. *Turkestan down to the Mongol Invasion*. 3rd ed., with an additional ch. tr. T. Minorsky, ed. with further addenda and corrigenda by C. E. Bosworth. London.

BIRA, S. 1978. *Mongol'skaya istoriografiya XIII–XVII vekov* [Mongolian Historiography of the 13th–17th century]. Moscow.

——. 1989. On the Traditional Historiographical Mutual Relationship Between India and Mongolia. In: S. Bira (ed.), *Mongolia and India*. Ulan Bator.

BOSWORTH, C. E. 1961. The Early Islamic History of Ghūr. *CAJ*, Vol. 6, pp. 116–33. Repr. in: *The Medieval History of Iran, Afghanistan and Central Asia*, No. IX. London, 1977.

——. 1963. Early Sources for the History of the First Four Ghaznavid Sultans (977–1041). *IQ*, Vol. 7, pp. 3–22. Repr. in: *The Medieval History of Iran, Afghanistan and Central Asia*, No. XIII.

——. 1973. *The Ghaznavids, their Empire in Afghanistan and Eastern Iran 994:1040*. 2nd ed. Beirut.

——. 1990. Administrative Literature. In: M. J. L. Young et al. (eds.), *The Cambridge History of Arabic Literature. Religion, Learning and Science in the ʿAbbasid Period*, pp. 155–67. Cambridge.

——. 1992. The Early Islamic Period of Iranian History: An Overview. *Arab Journal for the Humanities*, Vol. 39, pp. 386–400. Kuwait.

——. 1993. Art. Naṣiḥat al-mulūk. In: EI^2, Vol. 7, pp. 984–8.

——. 1994. *The History of the Saffarids of Sistan and the Maliks of Nimruz (247/861 to 949/1542–3)*. Costa Mesa, Calif./New York.

BOYLE, J. A. 1958. *The History of the World-Conqueror by ʿAla -ad-Din ʿAta-Malik Juvaini. Translated from the Text of Mirza Muhammad Qazvini*. Manchester. 2 vols.

——. 1962. Juvaynī and Rashīd al-Dīn as Sources on the History of the Mongols. In: B. Lewis and P. M. Holt (eds.), *Historians of the Middle East*, pp. 133–7. London.

——. 1971. *The Successors of Genghis Khan*. Tr. from the Persian of Rashīd al-Dīn. New York/London.

BROCKELMANN, C. 1937–49. *Geschichte der arabischen Literatur*. Leiden. 2 vols. and 3 vols. Supplement.

BROWNE, E. G. 1908. *A Literary History of Persia*, Vol. 1: *From the Earliest Times until Firdawsí*. London.

BULLIET, R. W. 1972. *The Patricians of Nishapur. A Study in Medieval Islamic Social History*. Cambridge, Mass.

CAHEN, Cl. 1962. The Historiography of the Seljuqid Period. In: B. Lewis and P. M. Holt (eds.), *Historians of the Middle East*, pp. 59–78. London.

CLEAVES, F. W. 1982. *The Secret History of the Mongols*, Vol. 1. Ed. and English tr. F. W. Cleaves. Harvard, Mass.

EI[2], arts. al-Ghazālī (W. M. Watt); al-Marghīnānī (W. Heffening); al-Fārābī (R. Walzer); al-Tabarī, Abū Dja^cfar Muhammad b. Djarīr (C. E. Bosworth); al-Sallāmī (C. E. Bosworth); al-Nasawī, Shihāb al-Dīn Muhammad (P. Jackson); Shāmī, Nizām al-Dīn (P. Jackson); Sharaf al-Dīn ᶜAlī Yazdī (C. E. Bosworth); Ibn ᶜArabshāh (J. Pedersen); Mirkhʷānd (A. Beveridge and B. F. Manz); Khʷāndamīr (A. Beveridge and J. T. P. de Bruijn).

EIr, art. Āl-e Borhān (C. E. Bosworth).

AL-FĀRĀBĪ. 1985. *Al-Fārābī on the Perfect State (Ārā' ahl al-madīna al-fāḍila).* Ed. and English tr. R. Walzer. Oxford.

FRYE, R. N. 1950–55. City Chronicles of Central Asia and Khurasan. The Ta'rīx-i Nīšāpūr. In: *60. doğum yılı münasebetiyle Zeki Velidi Togan'a armağan. Symbolae in honorem Z. V. Togan*. pp. 405–20. Istanbul. Repr. in: *Islamic Iran and Central Asia (7th–12th Centuries)*, No. XXXII. London, 1979.

——. 1954. *The History of Bukhara* (tr. from a Persian abridgement of the Arabic original by Narshakhī.) Cambridge, Mass.

——. 1956. City Chronicles of Central Asia and Khurasan. The Kitāb-e Mullāzāde. In: *Avicenna Commemoration Volume*. Calcutta. Repr. in: *Islamic Iran and Central Asia (7th–12th Centuries)*, No. XXXIII. London.

——. 1962. *The Heritage of Persia*. London.

AL-GHAZALI. 1964. *Ghazālī's Book of Counsel for Kings* (Naṣīḥat al-Mulūk). English tr. F. R. C. Bagley. London.

HILLENBRAND, C. 1988. Islamic Orthodoxy or Realpolitik? Al-Ghazālī's Views on Government. *Iran, JBIPS*, Vol. 26, pp. 81–94.

HUNG, W. 1951. The Transmission of the Book Known as the Secret History of the Mongols. *Harvard Journal of Asiatic Studies*, Vol. 14, No. 4.

INOSTRANTSEV, K. 1918. *Iranian Influence on Moslem Literature*. English tr. G. K. Narimar. Bombay.

JUWAYNĪ, ᶜATĀ MALIK. 1958. *The History of the World-Conqueror*. English tr. J. A. Boyle. Manchester. 2 vols.

KAY KĀWŪS B. ISKANDAR. 1951. *A Mirror for Princes. The Qābūs-nāma*. English tr. R. Levy. London.

LAMBTON, A. K. S. 1962. Persian Biographical Literature. In: B. Lewis and P. M. Holt (eds.), *Historians of the Middle East*, pp. 141–51. London.

——. 1981. *State and Government in Medieval Islam. An Introduction to the Study of Islamic Political Theory: The Jurists*. Oxford.

——. 1984. The Dilemma of Government in Islamic Persia: The *Siyāsat-nāma* of Niẓām al-Mulk. *Iran, JBIPS*, Vol. 22, pp. 55–66.

——. 1988. Concepts of Authority in Persia: Eleventh to Nineteenth Centuries. *Iran, JBIPS*, Vol. 26, pp. 95–104.

LAOUST, H. 1970. *La politique de Ġazālī*. Paris.

MADELUNG, W. 1988. *Religious Trends in Early Islamic Iran*. Albany, N.Y.

MARGOLIOUTH, D. S. 1930. *Lectures on Arabic Historians*. Calcutta.

MORGAN, D. O. (ed.) 1982. Persian Historians and the Mongols. In: *Medieval Historical Writing in the Christian and Islamic Worlds*, pp. 109–24. London.

——. 1986. *The Mongols*. Oxford.

MOTTAHEDEH, R. 1997. The Transmission of Learning: The Role of the Islamic North-east. In: N. Grandin and M. Gaborieau (eds.), *Madrasa. La transmission du savoir dans le monde musulman*, pp. 63–72. Paris.

NIZĀM AL-MULK. 1978. *The Book of Government or Rules for Kings*. English tr. H. Darke. 2nd ed. London.

NÖLDEKE, T. 1920. *Das Iranische Nationalepos*. 2nd. ed. Berlin/Leipzig.

PELLIOT, P.; HAMBIS, L. 1951. *Histoire des campagnes de Gengis khan. Cheng-wou ts'in-tcheng lou*. Leiden.

RACHEWILTZ, I. DE. 1971–81. The Secret History of the Mongols. In: *Papers in Far Eastern History*, Vols. 4, 5, 10, 13, 16, 18, 21 and 23. Canberra.

RASHID AL-DIN. 1971. *The Successors of Gengis Khan*. Tr. from the Persian by J. A. Boyle. Columbia.

RATCHNEVSKY, P. 1991. *Genghis Khan. His Life and Legacy*. Tr. and ed. T. N. Haining. Oxford/Cambridge.

RICHTER, G. 1932. *Studien zur Geschichte der älteren arabischen Fürstenspiegel*. Leipzig.

ROSENTHAL, E. I. J. 1968. *Political Thought in Medieval Islam. An Introductory Outline*. Cambridge.

ROSENTHAL, F. 1968. *A History of Muslim Historiography*. 2nd ed. Leiden.

——. 1989. *The History of al-Ṭabarī, an Annotated Translation*, Vol. 1: *General Introduction and from the Creation to the Flood*. Albany, N.Y.

SAFA, Z. 1986. Persian Literature in the Timurid and Türkmen Periods. In: *The Cambridge History of Iran*. Vol. 6: *The Timurid and Safavid Periods* (ed. P. Jackson and L. Lockhart.), pp. 913–28. Cambridge.

SAGASTER, K. 1976. *Die Weisse Geschichte*. Wiesbaden.

Sbornik letopisey. Russian tr. of Rashīd al-Dīn, *Jāmiᶜ al-tawārīkh*, Vol. 1, Books 1 & 2, 1952; Vol. 2, 1960; Vol. 3, 1966.

SINOR, D. 1989. Notes on Inner Asian Bibliography, IV: History of the Mongols in the 13th Century. *Journal of Asian History*, Vol. 23, pp. 26–74.

STOREY, C. A. 1927–53. *Persian Literature. A Bio-Bibliographical Survey*, Vol. 1: *Qur'ānic Literature; History and Biography*. London.

TOGAN, Z. V. 1962. The Composition of the History of the Mongols by Rashid al-Din. *CAJ*, Vol. 7, No. 1.

VLADIMIRTSOV, B. 1934. *Obshestvenniy stroy Mongolov. Mongolskiy kochevoy feodalism*. Leningrad.

WATT, W. M. 1968. *Islamic Political Thought. The Basic Concepts*. Edinburgh.

YŪSUF KHĀSS HĀJIB. 1983. *Wisdom of Royal Glory (Kutadgu Bilig). A Turko-Islamic Mirror for Princes*. English tr. R. Dankoff. Chicago, Ill./London.

CHAPTER 5

BOSWORTH, C. E. 1963. A Pioneer Arabic Encyclopedia of the Sciences: Al-Khwārizmī's Keys of the Sciences. *Isis*, Vol. 54, pp. 97–113.

CORBIN, H. 1954. *Avicenne et le récit visionnaire*. Tehran/Paris. English tr. W. R. Trask, *Avicenna and the Visionary Recital*. Irving, Tex., 1980.

EI[2], arts. Falāsifa, Falsafa, Ishrāḳ, Ishrāḳiyyūn, Manṭiḳ (R. Arnaldez); ʿIlm al-kalām (L. Gardet); Ismāʿīliyya (W. Madelung); Taṣawwuf. 1. (L. Massignon; B. Reinert), 2. (W. M. Chittick).

EIr, arts. Avicenna (M. Mahdi et al.); Cosmogony and Cosmology. v. In Twelver Shiʿism (M. A. Amir Moezzi), vi. In Ismaʿilism (W. Madelung).

FAKHRY, M. 1983. *A History of Islamic Philosophy*. 2nd ed. London/New York.

GARDET, L. 1951. *La pensée religieuse d'Avicenne (Ibn Sīnā)*. Paris.

GUTAS, D. 1988. *Avicenna and the Aristotelian Tradition. An Introduction to Reading Avicenna's Philosophical Works*. Leiden.

LEAMAN, O. 1985. *An Introduction to Medieval Islamic Philosophy*. Cambridge.

LEAMAN, O.; NASR, S. H. 1993. *A History of Islamic Philosophy*. London.

MAKDOUR, I. 1934. *La place d'al-Fārābī dans l'école philosophique musulmane*. Paris.

MOREWEDGE, P. (ed.) 1979. *Islamic Philosophical Theology*. Albany, N.Y.

——. (ed.). 1981. *Islamic Philosophy and Mysticism*. New York.

NASR, S. H. 1968. *Science and Civilization in Islam*. Cambridge.

——. 1969. *Three Muslim Sages. Avicenna – Suhhrawardī – Ibn ʿArabī*. Cambridge, Mass.

——. 1976. *Islamic Science. An Illustrated Study*. London.

——. 1977. *Ismaʿili Contributions to Islamic Culture*. Tehran.

——. 1978. *An Introduction to Islamic Cosmological Doctrines. Conceptions of Nature and Methods Used for its Study by the Ikhwān al-Ṣafā', al-Bīrūnī and Ibn Sīnā*. 2nd ed. London.

NETTON, I. R. 1989. *Allah Transcendent. Studies in the Structure and Semiotics of Islamic Philosophy, Theology and Cosmology*. London/New York.

——. 1992. *Al-Fārābī and his School*. London.

AL-RĀZĪ, ABŪ BAKR. 1950. *The Spiritual Physick of al-Rāzī*. English tr. A. J. Arberry. London.

SAFĀ, DHABĪH ALLĀH. 1331/1952. *Tārīkh-i ʿulūm-i ʿaqlī*. Tehran.

SHARIF, M. M. (ed.). 1963. *A History of Muslim Philosophy*. Wiesbaden. 2 vols.

STERN, S. M. 1983. *Studies in Early Ismāʿīlism*. Jerusalem/London.

WATT, W. M. 1962. *Islamic Philosophy and Theology*. Edinburgh.

ZIAI, H. 1990. *Knowledge and Illumination. A Study of Suhrawardī's Hikmat al-Ishrāq*. Atlanta, Ga.

CHAPTER 6

AABOE, A. 1954. Al-Kashi's Iteration Method for the Determination of Sin 1°. *SM*, Vol. 20.

AHMAD, S.; RASHED, R. (eds). 1972. *Al-Bahir en Algèbre d'As-Samaw'al*. Damascus.

ALI, J. 1967. *The Determination of the Coordinates of Positions for the Correction of Distances Between Cities: A Translation from the Arabic of al-Bīrūnī's Kitāb Tahdīd nihāyāt al-amākin li-tas'hīh masāfāt al-masākin*. Beirut.

AMEER ALI, S. 1982. *The Spirit of Islam*. Karachi.

AMIR-MOEZ, A. 1959. Discussions of Difficulties in Euclid. *SM*, Vol. 24.

ASIMOV, M. S. 1986. The Life and Teaching of Ibn Sina. In: *Indian Journal of History of Science*, Vol. 21.

AYDIN, M. S. 1984. *Ibn Sina's Ethics*, pp. 129–39. (Kultur Ve Turizm Bakanliği Milli Kütüphane Yayınları Toplantı Bildirilerim Drezisı: Uluslararası Ibni Sina Sempozyumu, Ankara.)

BERGGREN, J. L. 1980. A Comparison of Four Analemmas for Determining the Azimuth of the Qibla. *JHAS*, Vol. 4, pp. 69–80.

——. 1982. Al-Bīrūnī on Plane Maps of the Sphere. *JHAS*, Vol. 6, pp. 47–112.

——. 1983. The Correspondence of Abū Sahl al-Kūhī and Abū Isḥāq al-Sābī. *JHAS*, Vol. 7, pp. 39–124.

——. 1987. *Episodes in Mathematics of Medieval Islam*. Berlin/Heidelberg.

——. 1990. Innovation and Tradition in Sharaf al-Dīn al-Tūsī's *Al-Muʿādalāt*. *JAOS*, Vol. 110, pp. 304–9.

——. 1991. Medieval Islamic Methods for Drawing Azimuth Circles on the Astrolabe. *Centaurus*, Vol. 34, pp. 309–44. Copenhagen.

BOYER, C. B. 1968. *A History of Mathematics*. New York.

CARATHÉODORY PASHA, A. 1891. *Traité du quadrilatère [Shakl al-qiṭāʿ]*. Constantinople.

DANI, A. H. 1986. *Indian Paleography*. (Preface to the 2nd ed.) New Delhi.

DEBARNOT, M.-T. 1985. (ed. and tr.). *Al-Bīrūnī: Kitāb maqālīd ʿilm al-hay'a: La trigonométrie sphérique chez les Arabes de l'Est à la fin du Xᵉ siècle*. Damascus.

DOLD-SAMPLONIUS, Y. 1992. Practical Arabic Mathematics: Measuring the Muqarnas by al-Kāshī. *Centaurus*, Vol. 35, pp. 193–242. Copenhagen.

EVES, H. W. 1958. Omar Khayyam's Solution of Cubic Equations. *The Mathematics Teacher*, Vol. 51, pp. 285–6. Washington, D.C.

——. 1983. *An Introduction to the History of Mathematics*. New York.

GANDZ, S. 1936. The Origin and Development of the Quadratic Equations in Babylonian, Greek, and Early Arabic Algebra. *Osiris*, Vol. 3.

HARDING, K. 1993. Casualty Then and Now: Al-Ghazali and Quantum Theory. *American Journal of Social Sciences*, Vol. 10 (2), pp. 165–77.

HAYES, J. R. (ed.). 1983. *The Genius of Arab Civilization. Source of Renaissance*. 2nd ed. Cambridge, Mass.

HOGENDIJK, J. P. 1984. Greek and Arabic Constructions of the Regular Heptagon. *Archive for History of Exact Sciences*, Vol. 30, pp. 197–330.

——. 1985. *Ibn al-Haytham's Completion of the Conics*. New York.

——. 1989. Sharaf al-Dīn al-Tūsī on the Number of Positive Roots of Cubic Equations. *HM*, Vol. 16, No. 1, pp. 69–85.

HOLT, P. M.; LAMBTON, A. K. S.; LEWIS, B. (eds.). 1970. *The Cambridge History of Islam*, Vol. 2. Cambridge.

HØYRUP, J. 1986. Al-Khwārizmī, Ibn Turk and the Liber Mensurationum: On the Origins of Islamic Algebra. *Erdem*, Vols. 5, 2, pp. 445–84. Ankara.

ILYAS, M. 1992. Astronomy and Islamic Science: Some Features. *ITC*, Vol. 3 (1), pp. 25–38.

IQBAL, M. 1992. Five Eminent Early Muslim Scientists and their Contributions to Islamic Thought. *ITC*, Vol. 3 (3), pp. 7–28.

JAOUICHE, K. 1986. *La théorie des parallèles en pays d'Islam*. Paris.

KARPINSKI, L. C. 1914. The Algebra of Abu Kamil. *The American Mathematical Monthly*, Vol. 21, pp. 37–48. Baltimore, Md.

KENNEDY, E. S. 1964. The Chinese-Uighur Calendar as Described in the Islamic Sources. *Isis*, Vol. 55 (4), No. 182, pp. 435–443. Washington, D.C. (Repr. in: Kennedy et al., 1983, pp. 652–60.)

——. 1973. *A Commentary upon Bīrūnī's Kitāb Tahdīd Nihāyāt al-Amākin. An 11th Century Treatise on Mathematical Geography*. Beirut.

KENNEDY, E. S., et al. 1983. *Studies in the Islamic Exact Sciences*. Eds. M. H. Kennedy and D. A. King. Beirut.

KENNEDY, E. S.; TRANSUE, W. R. 1956. A Medieval Iterative Algorithm. *American Mathematical Monthly*, Vol. 63 (2). (Repr. in: Kennedy et al., 1983, pp. 513–16.)

AL-KHWĀRAZMĪ, MUHAMMAD IBN MŪSĀ. 1939. *Kitāb al-jabr wa'l-muqābala*. Cairo.

KING, D. A. 1974*a*. On Medieval Islamic Multiplication Tables. *HM*, Vol. 1, pp. 317–23. (Repr. in: King, 1986.)

——. 1974*b*. Supplementary Notes on Medieval Islamic Multiplication Tables. *HM*, Vol. 6, pp. 405–17. (Repr. in: King, 1986.)

——. 1979. Kibla: Sacred Direction. In: *EI*², Vol. 5, fasc. 79–80, pp. 83–8.

——. 1986. *Islamic Mathematical Astronomy*. London.

——. 1990. Mīḳāt: Astronomical Time-keeping. In: *EI*², Vol. 7, fasc. 115–16, pp. 27–32.

KING, D. A.; SALIBA, G. (eds.) 1987. *From Deferent to Equant: A Volume of Studies in Honour of E. S. Kennedy*. New York.

KRISCIUNAS, K. 1992. The Legacy of Ulugh Beg. In: *AACR Bulletin*, Vol. 5/1.

LEVY, M. (ed. and tr.). 1966. *The Algebra of Abū Kāmil* [*Kitāb fī al-jabr wa'l-muqābala*]. Madison, Wis.

LEVY, M.; PETRUCK, M. (eds. and tr.). 1965. *Principles of Hindu Reckoning [Kitāb fī Hisāb al-Hind] by Kūshyar b. Labbān*. Madison, Wis.

LORCH, R. 1987. Al Saghānī's Treatise on Projecting the Sphere. In: King and Saliba (eds.), 1987, pp. 237–52.

MATVIEVSKAYA, G. P. 1987. The Theory of Quadratic Irrationals in Medieval Oriental Mathematics. In: King and Saliba (eds.), 1987, pp. 253–77.

MOEZ, A. R. 1963. A Paper of Omar Khayyam. *SM*, Vol. 26, pp. 323–37.

NADER, N. (ed.). 1977. *Miftah al-Hisab d'Al-Kashi*. Damascus.

NAINI, A. 1982. *Geschichte der Zahlentheorie im Orient*. Brunswick.

NASR, S. H. 1970. *Science and Civilization in Islam*. New York.

——. 1976. *Islamic Science. An Illustrated Study*. World of Islam Festival Publishing, London.

PLOOIJ, E. B. 1950. *Euclid's Conception of Ratio and His Definition of Proportional Magnitudes as Criticized by Arabian Commentators*. Rotterdam.

QADUS, A. 1992. Astronomical Science as Excelled under Islam during the Medieval Era. *ITC*, Vol. 3 (1), pp. 31–6.

QURAISHI, M. S.; QURAISHI, A. I. 1993. A Holistic View of the Achievements of Early Muslim Scientists. *ITC*, Vol. 4 (1), pp. 59–72.

RASHED, R. 1985. *Sharaf al-Dīn al-Tūsī, œuvres mathématiques: Algèbre et géométrie au XII*^e^ *siècle*. Paris.

REHMAN KHAN, H. 1992. Contributions of Muslims to Medicine and Science. *ITC*, Vol. 3 (1), pp. 37–48.

RIZVI, S. S. H. 1991. Al-Biruni's Criterion for the Visibility of the Lunar Crescent. *Hamdard Islamicus*, Vol. 14 (1), pp. 43–52. Karachi.

RIZVI, S. S. H. 1993. Muslim Contributions to the Science of Measurements. *ITC*, Vol. 1 (3), pp. 21–40.

RIZVI, S. H.; QURASHI, M. M. 1991. Muslim Contributions to Pure Physics: A Critical Survey. *ITC*, Vol. 2 (4), pp. 7–26.

ROSEN, F. (ed. and tr.). 1986. *The Algebra of Mohammed ben Musa*. London (1831). Repr.

ROSENFELD, B. A. 1988. *A History of Non-Euclidian Geometry: Evolution of the Concept of a Geometric Space*. New York/Berlin, etc. (Originally published as *Istoriya nevelikovoy geometrii: Razvitie ponyatiya o geometricheskom prostranstve*. Moscow, 1976.)

SABRA, A. I. 1971. ʿIlm al-Ḥisāb. In: *EI²*, Vol. 3, pp. 1138–40.

——. 1980. The Scientific Enterprise. In: Bernard Lewis (ed.), *The World of Islam*, Ch. 7, pp. 181–201. London.

——. 1989. *The Optics of Ibn al-Haytham. Books I–III: On Direct Vision*. (English tr. with introduction, commentary, Arabic-Latin Glossary and Concordance. In 2 Parts.) London.

SAIDAN, A. S. 1966. The Earliest Extant Arabic Arithmetic. *Isis*, Vol. 57. Washington D.C.

SAIDAN, A. S. (ed.). 1971. *The Arithmetic of Abu al-Wafa' al-Buzajani [Kitāb fīmā yahtāju ilayhi al-kuttāb wa 'l-ʿummāl min ʿilm al-hisāb]*. Amman.

——. 1973. *The Arithmetic of al-Uqlidisi [Kitāb al-fusūl fī hisāb al-Hind]*. Amman.

——. 1974. The Arithmetic of Abu 'l-Wafā'. *Isis*, Vol. 65, No. 228, pp. 367–75. Washington D.C.

SALIBA, G. 1987. The Role of Marāgha in the Development of Islamic Astronomy: A Scientific Revolution Before the Renaissance. *Revue de Synthèse*, Vol. 108, pp. 361–73. Paris.

SARTON, G. 1927–48. *Introduction to the History of Science*, Vols. 1–3. Baltimore, Md.

SAYILI, A. 1962. *Logical Necessities of Mixed Equations by ʿAbd Al-Hamīd Ibn Turk and the Algebra of his Time*. Ankara.

——. 1985. The Algebra of Abd Al-Hamid Ibn Turk and Al-Khwarazmi. In: Sayili, *Logical Necessities of Mixed Equations by ʿAbd Al Hamīd Ibn Turk and the Algebra of his Time*, Ch. 4, pp. 105–25. Ankara.

SCHACHT, J.; BOSWORTH, C. E. (eds). 1974. *The Legacy of Islam*. New ed., Ch. 10. Oxford.

SEZGIN, F. 1974. *Geschichte des Arabischen Schrifttums*, Vol. 5: *Mathematik*. Leiden.

SIDDIQI, M. R. 1991. Islamic Scientific Thought and Contributions of Muslims. *ITC*, Vol. 2 (4), pp. 27–44.

SMITH, D. E. 1923. *History of Mathematics*, Vols. 1 and 2. New York.

STRUIK, D. J. 1958. Omar Khayyam: Mathematician. *The Mathematics Teacher*, Vol. 51, pp. 280–4. Washington, D.C.

TOOMER, G. J. 1973. Al-Khwārizmī. In: C. G. Gillispie et al. (eds.), *Dictionary of Scientific Biography*, Vol. 7, pp. 358–65. New York.

WOEPCKE, F. 1851. *L'Algèbre d'Omar Alkhayyāmī*. Paris.

CHAPTER 7

AL-BĪRŪNĪ, ABŪ RAYHĀN. 1934. *Kitāb al-Tafhīm li-awā'il sinā'at al-tanjīm*. Ed. and English tr. R. Ramsay Wright, *The Book of Instruction in the Elements of the Art of Astrology*. London.

——. 1957. Pamyatniki minuvshikh pokoleniy (khronologiya). In: *Izbr. proizvedeniya*, Vol. 1. Tr. and notes by M. A. Salye. Tashkent.

——. 1966. Opredeleniye granits mest dlya utochneniya rasstoyaniy mezhdu naselënnymi punktami (Geodeziya). In: *Izbrannye proizvedeniya*, Vol. 3. Research, tr. and commentary by P. G. Bulgakov.

——. 1959. *On Transits*. Tr. by M. Saffouri and A. Ifram with a commentary by E. S. Kennedy. Beirut.

——. 1976. *Kanon Mas'uda (Books VI–XI)*. In: *Izbrannye proizvedeniya*, Vol. 5. Tr. and commentary by B. A. Rozenfeld and A. Akhmedov with the participation of M. M. Rozhanskaya (tr. and commentary), S. A. Krasnova and Y. P. Smirnov (tr.), indexes by A. Akhmedov. Tashkent.

——. 1995. *Kniga vrazumleniya nachatkam nauki o zvezdakh*. In: *Izbrannye proizvedeniya*, Vol. 6. Introductory article, tr. and commentary by B. A. Rozenfeld and A. Akhmedov with the participation of M. M. Rozhanskaya, A. A. Abdurakhmanov and N. D. Sergeyeva. Tashkent.

BOILOT, D. J. 1955. L'oeuvre d'al-Beruni: Essai bibliographique. *MIDEO*, Vol. 2, pp. 161–256.

BULGAKOV, P. G. 1972. *Zhizn i trudy Biruni*. Tashkent.

DZHALALOV, G. D. 1947. Sekstant kak glavniy instrument observatorii Ulugbeka. *Astronomicheskiy Zhurnal*, No. 4. Moscow.

——. 1950. Biruni i astronomicheskaya nauka. In: *Biruni. Velikiy uchëniy srednevekov'ya*, p. 81. Tashkent.

KENNEDY, E. S. 1956. A Survey of Islamic Astronomical Tables. In: *Transactions of the American Philosophical Society*. N.S., Vol. 46, Part 2. Philadelphia.

——. 1958. The Sasanian Astronomical Handbook Zig-i Shan and the Astrological Doctrine of 'Transit' (Mamarr). *JAOS*, Vol. 78.

AL-KHWĀRAZMĪ, MUHAMMAD IBN MŪSĀ. 1983. *Astronomicheskiye traktaty*. Introduction, tr. and commentary by A. Akhmedov. Tashkent.

KORI-NIEZIY, T. N. 1971. *Ulugbek va uning ilmiy merosi*. Tashkent.

KRACHKOVSKIY, I. Y. 1957. Arabskaya geograficheskaya literatura. In: *Izbrannye sochineniya*, Vol. 4. Moscow/Leningrad.

LIVSHITS, V. A. 1970. Khorezmskiy kalendar' i êra drevnego Khorezma. In: *Istoriya, kul'tura, yazyki narodov Vostoka*. Moscow.

MATVIEVSKAYA, G. P. 1972. *Ucheniye o chisle na srednevekovom Vostoke*. Tashkent.

MATVIEVSKAYA, G. P.; ROZENFELD, B. A. 1983. *Matematiki i astronomy musul'manskogo sredenvekov'ya i ikh trudy (VIII–XVII vv.)*, Book 2. Moscow.

NALLINO, C. A. 1944. Astronomia, astrologia, geografia. In: *Raccolta di scritti editi e inediti*, Vol. 5. Rome.

PINGREE, D. 1963. Astronomy and Astrology in India and Iran. *Isis*, Vol. 54. New York.

——. 1968. *The Thousands of Abu Ma'shar*. London.

PINGREE, D. 1970. The Fragments of the Works of al-Fazārī. *Journal of Near Eastern Studies*, Vol. 29.

——. 1973. The Greek Influence on Early Islamic Mathematical Astronomy. *JAOS*, Vol. 93, pp. 32–43.

ROZHANSKAYA, M. M. 1983. O znachenii 'Zidzha' al-Khorezmi v istorii astronomii. In: *Mukhammad ibn Musa al-Khorezmi. K 1200-letiyu so dnya rozhdeniya.* Moscow.

RUSKA, J. 1927. Über das Fortleben der antiken Wissenschaft im Orient. *Arch. Gesch. Math. Naturwiss. Techn.*, Vol. 10.

SAYILI, A. 1960. *The Observatory in Islam and its Place in the General History of the Observatory*. Ankara.

SCHIRMER, O. 1926–7. Studien zur Astronomie der Araber. *Sitzungsberichte der Physikalisch-Medizinischen Sozietat im Erlangen*, Vol. 58.

SEZGIN, F. 1978. *Geschichte des arabischen Schrifttums*, Vol. 6: *Astronomie*. Leiden.

ULUGHBEK, MUHAMMAD TARAGAY. 1994. *'Zidzh' novyye guraganovy astronomicheskiye tablitsy*. Introductory articles, tr. and commentary by A. Akhmedov. Tashkent.

ᶜUMAR KHAYYĀM. 1961. *Traktaty.* Tr. by B. A. Rozenfeld, introduction and commentary by B. A. Rozenfeld and A. P. Yushkevich. Moscow.

YUSHKEVICH, A. P. 1961. *Istoriya matematiki v srednikh vekakh*. Moscow.

YUSUPOVA, D. Y. 1979. *Pis'mo Giyas ad-Dina Kashi k svoemu otsu iz Samarkanda v Kashan*. Tashkent. (In the collection: *Iz istorii nauki epokhi Ulugbeka*.)

CHAPTER 8

AHMAD, S. MAQBUL. 1953. Al-Masᶜūdī's Contributions to Medieval Arab Geography. *IC*, Vol. 27, pp. 6–77; *IC*, Vol. 37, pp. 275–86.

——. 1960. Arts. Djughrāfiyā, and Kharīṭa. In: *EI²*.

——. 1995. *A History of Arab-Islamic Geography*. Mafraq, Jordan.

ANAWATI, G. C. 1979. The Kitāb al-Jamāhir fī maᶜrifat al-jawāhir of al-Bīrūnī. In: H. M. Said (ed.), *Al-Bīrūnī Commemoration Volume*, pp. 437–53. Karachi.

AL-BĪRŪNĪ, ABU 'L-RAYHĀN. 1934. *Kitāb al-Tafhīm li-awā'il sināᶜat al-tanjīm*. Ed. and English tr. R. Ramsay Wright, *The Book of Instruction in the Elements of the Art of Astrology*. London.

——. 1967. *Tahdīd nihāyāt al-amākin*. English tr. Jamil Ali, *The Determination of the Coordinates of Positions for the Correction of Distances between Cities*. Beirut.

BOULNOIS, L. 1966. *The Silk Road*. London.

GILLISPIE, C. G. (ed.). 1970–8. *Dictionary of Scientific Biography*. New York.

GROUSSET, R. 1954. *L'Empire des Steppes*. 4th ed. Paris. English tr. N. Walford, *The Empire of the Steppes. A History of Central Asia*. New Brunswick, N.J., 1970.

HSÜAN-TSANG. 1904–5. *On Yuan Chwang's Travels in India A.D. 629–45*. English tr. T. Walters.

IBN SĪNĀ, ABŪ ᶜALĪ AL-HUSAYN. 1964. *Kitāb al-Shifā', al-Tabīᶜiyyāt*. Ed. ᶜAbd al-Halīm Muntasir et al. Cairo.

JAᶜFRI, S. R. 1984. *Al-Khwārazmī. World Geography*. Islamabad/Dushanbe.

AL-KĀSHGHARĪ, MAHMŪD. 1982–4. *Diwān lughāt al-turk*. English tr. R. Dankoff and J. Kelly, *Compendium of the Turkic Dialects*. Cambridge, Mass. 2 vols.

LANGERMANN, Y. T. 1985. The Book of Bodies and Distances of Habash al-Hāsib. *Centaurus*, Vol. 28, pp. 108–28.
MA YONG. 1984. A Silken Highway from East to West. *UNESCO Courier*, July issue.
MERCIER, R. P. 1992. Geodesy. In: J. B. Harley and D. Woodward (eds.), *The History of Cartography*, Vol. 2, Book 1. Chicago, Ill./London.
MINORSKY, V. (ed. and tr.). 1937. *Hudūd al-ʿālam. The Limits of the World. An Anonymous Persian Geography*. London.
——. 1947–8. A False Jayhāni. *BSOAS*, Vol. 12.
RUSKA, J. 1913. Kazwīnī studien. *Isl.*, Vol. 4, pp. 14–66, 236–62.
SAʿID, H.; ZAHID, A. 1981. *Al-Bīrūnī, His Times, Life and Work*. Karachi.
SHAFER, E. M. 1963. *The Golden Peaches of Samarkand*. Berkeley/Los Angeles, Calif. Russian tr. E. Shefer, *Zolotye persiki Samarkanda*. Moscow, 1981.
UNESCO. 1994. *Les Routes de la Soie. Patrimoine commun, identités plurielles*. Paris.
YULE, Sir H.; CORDIER, H. 1914. *Cathay and the Way Thither*. London.

CHAPTER 9

ABDURAZAKOV, A. A. 1963. *Khimiko-tekhnologicheskoe issledovanye srednevekovykh stekol Sredney Azii*. Samarkand.
——. 1993. *Istoriya steklodeliya Sredney Azii v drevnosti i srednevekov'e*. Samarkand.
BEREZOV, T. T. 1982. *Biological Chemistry*. Moscow.
AL-BĪRŪNĪ, ABU 'L-RAYHĀN. 1973. *Kitāb al-Saydana fi 'l-tibb*. Ed. and tr. H. M. Said and S. Hamarneh, *Biruni on Pharmacy and Materia Medica*. Karachi. 2 vols.
BOGOMOLOV, G. I. 1996. Voennoe delo epokhi Temura. In: *Sbornik Amir Temur va uning dunë tarikhadagi urni*. Samarkand.
DASHIEVA, D. B. 1991. *rGyud-bzhi. Tantra of Direction*. Ulan Ude.
Dictionary of Chinese Traditional Medicine. 1986. Beijing. 2 vols.
EIr, arts. Avicenna. X. Biology and medicine; Bīrūnī. V. Pharmacology and Mineralogy.
*EI*², arts. al-Anbiḳ (E. Wiedemann); al-Bīrūnī (D. J. Boilot); Ibn Sīnā (A.-M. Goichon); al-Kīmiyā (M. Ullmann).
ELGOOD, C. 1951. *A Medical History of Persia and the Eastern Caliphate from the Earliest Times until the Year A.D. 1932*. Cambridge.
FIGUROVSKIY, N. A. 1969. *Ocherk obshchey istorii khimii*. Moscow.
The Four Treatises: 'rGyud-bzhi'. 1987. Inner Mongolia.
HAIDAV, Ts. 1975. *Overview on Medicinal Source Books of Oriental Medicine*. Ulan Bator.
ISHIDANBIROMO, J. 1988. *Dictionary*. Huhehot, Inner Mongolia.
KADYROV, A. A. 1990. *Vozniknovenie meditsiny v Sredney Azii*. Tashkent.
——. 1994. *Istoriya meditsiny Uzbekistana*. Tashkent.
KARIMOV, U. I. 1957. *Neizvestnoe Ar-Razi, 'Kniga tainy tain'*. Tashkent.
LUVSANCHOIDOG, D. 1984. *The Golden Set*. Huhehot, Inner Mongolia. 2 vols.
MURAEVA, D. A.; GAMMARMAN. 1974. *Tropical and Subtropical Medicinal Plants*. Moscow.
SEZGIN, F. 1970. *Geschichte des arabischen Schrifttums*, Vol. 3: *Medizin – Pharmazie – Zoologie – Tierheilkunde bis ca. 430 H*. Leiden.

SEZGIN, F. 1971. *Geschichte des arabischen Schrifttums*, Vol. 4: *Alchimie – Chemie – Botanik – Agrikultur bis ca. 430 H.* Leiden.
SINGER, C. 1948. *The Earliest Chemical Industries*. London.
STAVISKIY, B. Y. 1992. *Vvedenie v istoriyu kul'tury i iskusstva narodov Sredney Azii.* Moscow.
TUROVA, A. D.; SAPOJNIKOV, E. N. 1987. *Plants of the USSR and Vietnam*. Moscow.
ZAKUSOV, B. B. 1960. *Pharmacology*. Moscow.

CHAPTER 10

BANŪ MŪSĀ. 1979. *The Book of Ingenious Devices*. Tr. and annotated by Donald R. Hill. Dordrecht.
EI[2]. 1991. Index to Vols. 1–6, compiled and ed. by E. van Donzel. Leiden.
GARDET, L. 1965. Art: 'Djuz'. In: *EI*[2], Vol. 2, pp. 607–8.
AL-HASSAN, A. Y.; HILL, D. R. 1986. *Islamic Technology*. Cambridge.
HILL, D. R. 1984. *Engineering in Classical and Medieval Times*. London.
HILL, D. R. 1991. Arabic Mechanical Engineering: Survey of the Historical Sources. In: *Arabic Sciences and Philosophy*, Vol. 1, pp. 167–86. Cambridge.
KHANIKOFF, N. 1859. Analysis and Extracts from the Book of the Balance of Wisdom by al-Khāzinī. *JAOS*, Vol. 6, pp. 1–128.
LE STRANGE, G. 1905. *The Lands of the Eastern Caliphate*. London.
LLOYD, G. E. R. 1973. *Greek Science since Aristotle*. New York/London.
NEEDHAM, J. 1971. *Science and Civilisation in China*, Vol. 4, Part 3. Cambridge.
SABRA, A. I. 1991. Art. Manāẓir. In: *EI*[2], Vol. 6, pp. 376–7.
WHITNEY, E. 1990. *Paradise Restored. The Mechanical Arts from Antiquity through the Thirteenth Century*. Philadelphia.

CHAPTER 11

ANDRIANOV, B. V. 1969. *Drevnie orositel'nye sistemy priaral'ya*. Moscow.
BARTOL'D, V. V. 1963. Turkestan v êpokhu mongol'skogo nashestviya. *Sochineniya*, Vol. 1. Moscow.
——. 1965. K istorii orosheniya Turkestana. *Sochineniya*, Vol. 3. Moscow.
AL-BĪRŪNĪ, ABŪ RAYHĀN. 1957. *Izbrannye proizvedeniya*, Vol. 1. Tashkent.
BOGDANOV, O. P. 1961. *Zhivotnye Uzbekistana*. Tashkent.
——. 1992. Redkie zhivotnie Uzbekistana. *Entsiklopedicheskiy spravochnik*. Tashkent.
CLAVIJO, RUY GONZÁLES. 1990. *Dnevnik puteshestviya v Samarkand ko dvoru Timura (1403–1406)*. Moscow.
GULYAMOV, Y. G. 1957. *Istoriya orosheniya Khorezma s drevneyshikh vremen do nashikh dney*. Tashkent.
——. 1985. History of Irrigation and Drainage in the USSR. *History of Irrigation, Drainage, Flood Control and River Engineering*, Vol. 1. New Delhi. (Prepared by USSR National Committee on Irrigation and Drainage and published with financial support of UNESCO.)
IBN ʿARABSHĀH. 1992. *Temur tarikhida takdir azhāibātlari.* Tashkent.

IBN HAWQAL. 1873. *Kitāb Sūrat al-ard.* Ed. M. J. de Goeje. Leiden.
KOROVIN, V. P. 1961–2. *Rastitel'nost' Sredney Azii i yuzhnogo Kazakhstana*, Vols. 1–2. Tashkent.
AL-MAQDISĪ. 1906. *Ahsan al-taqāsīm.* 2nd ed. Ed. M. J. de Goeje. Leiden.
MASAL'SKIY, V. I. 1913. *Turkestanskiy kray.* St Petersburg.
MUKHAMEJANOV, A. P. 1978. *Istoriya orosheniya Bukharskogo oazisa (s drevneyshikh vremen).* Tashkent.
NARSHAKHĪ. 1957. *The History of Bukhara* (tr. by R. N. Frye from a Persian abridgement of the Arabic original by Narshakhī). Cambridge, Mass.
RTVELADZE, E. V.; ISKHAKOV, M. K. 1977. Plotina Sar-i-Band. *Stroitel'stvo i arkhitektura Uzbekistana*, Vol. 1. Tashkent.
TOLSTOV, S. P. 1962. *Po drevnim del'tam Oksa i Yaksarta.* Moscow.
TSIZERLING, B. V. 1927. *Orosheniye na Amudar'e.* Moscow.
VAVILOV, N. I. 1987. *Proiskhozhdeniye i geografiya kul'turnykh rasteniy.* Leningrad.
YAGODIN, V. N. 1991. *Strelovidnye planirovki Ustyurta (opyt istoriko-kul'turnoy interpretatsii).* Tashkent.
ZAKHIDOV, T. Z.; MEKLENBURTSEV, R. N. 1969. *Priroda i zhivotnyy mir Sredney Azii.* Tashkent.
ZAKIROV, K. Z.; ZAKIROV, P. K. 1978. *Opyt tipologii rastitel'nosti zemnogo shara na primere Sredney Azii.* Tashkent.

CHAPTER 12

DE BLOIS, F. 1997. *Persian Literature, a Biobibliographical Survey*, Vol. 5: *Poetry of the Pre-Mongol Period.* London.
BOSWORTH, C. E. 1996. *The New Islamic Dynasties, a Chronological and Genealogical Manual.* Edinburgh.
BROCKELMANN, C. 1937–49. *Geschichte der arabischen Litteratur.* 2 vols. and 3 vols. Supplement. Leiden.
CHIr (= *The Cambridge History of Iran*), Vol. 4 (ed. R. N. Frye): *From the Arab Invasion to the Saljuqs.* Cambridge, 1975; Vol. 5 (ed. J. A. Boyle): *The Saljuq and Mongol Periods.* Cambridge, 1968.
DIETRICH, A. 1966. Medicinalia Arabica. In: *Abhandlungen der Akademie der Wissenschaften zu Göttingen.* (Phil.-hist. Klasse, Series 3, No. 66.)
EI², arts. al-Barāmika (D. Sourdel); Bayṭār (M. Plessner); Fakhr al-Dīn al-Rāzī (G. C. Anawati); al-Masīḥī (A. Dietrich); al-Rāzī, Abū Bakr (L. E. Goodman).
EIr, arts. Abū Mansūr Haravī (L. Richter-Bernburg); Abū Zayd al-Balkī (W. M. Watt); Akavaynī Bokārī (H. H. Biesterfeldt); Asb (i–ii) (A. S. Shahbazi and F. Thordarson); Asb (iii) in Islamic Times, and (iv) in Afghanistan (ʿA. Soltānī Gordfarāmarzī and C. E. Bosworth); Avicenna. i (M. Mahdi et al.); Avicenna. x (B. Musallam); Barmakids (I. Abbas); Bāz, Bāzdārī, Bāz-nāma (H. Aʿlam); Ebn Abī Ṣādeq (L. Richter-Bernburg); al-Kvārazmī, Abū ʿAbd Allāh (A. I. Sabra); al-Bīrūnī, Abū Rayḥān (C. E. Bosworth and G. C. Anawati).
EncArLit (= *Enclycopedia of Arabic Literature*). 1998. Ed. J. S. Meisami and P. Starkey. 2 vols. London/New York. Arts. Ibn Sīnā (H. Landolt); al-Majūsī (L. I. Conrad); al-Rāzī, Abū Bakr (G. Endress).

FELLMANN, I. 1986. *Das Aqrabāḏīn des al-Qalānisī.* Ed. F. Steiner, *Beiruter Texte und Studien*, Vol. 35. Beirut/Wiesbaden.

GAP (= *Grundriss der arabischen Philologie*). 1991. Vol. 3, Supplement. Wiesbaden.

GUTAS, D. 1988. *Avicenna and the Aristotelian Tradition.* Leiden.

HAMARNEH, S. K. 1988. *Introduction to al-Bīrūnī's Book on Precious Stones and Minerals (al-Jamāhīr fī Mäʿrifat al-Jawāhir)*, with Interpretation and Evaluation. Islamabad.

ISAACS H. D.; GÓMEZ NOGALES, S. 1990. Ch. Al-Rāzī. In: *The Cambridge History of Arabic Literature.* M. J. L. Young et al. (eds.), Vol. 3: *Religion, Learning and Science in the ʿAbbasid Period.* Cambridge.

ISKANDAR, A. Z. 1990. Al-Rāzī. In: *The Cambridge History of Arabic Literature.* M. J. L. Young et al. (eds.), Vol. 3: *Religion, Learning and Science in the ʿAbbasid Period.* Cambridge.

JAGGI, O. P. 1981. Indian Influence on Arab Medicine. In : *Medicine in Medieval India*, pp. 73–79. (History of Sciences and Technology in India, Vol. 8). Lucknow.

KESHAVARZ, F. 1986. *A Descriptive and Analytical Catalogue of Persian Manuscripts in the Library of the Wellcome Institute for the History of Medicine.* London.

LEVY , R. (tr.). 1951. *A Mirror for Princes, the Qābūs Nāma by Kai Kā'ūs ibn Iskandar, Prince of Gurgan.* London.

MICHEAU, F. 1994. Constantine the African and ʿAlī b. al-ʿAbbās al-Maǧūsī. The Pantegni and Related Texts. In: *Studies in Ancient Medicine*, C. Burnett and D. Jacquart (eds.), Vol. 10. Leiden.

MÖLLER, D. 1965. *Studien zur mittelalterlichen arabischen Falknereiliteratur.* Berlin.

RAGEP, F. J.; RAGEP, S. P. 1996. *Tradition, Transmission, Transformation: Proceedings of Two Conferences on Pre-modern Science Held at the University of Oklahoma.* Leiden.

RICHTER-BERNBURG, L. 1974. Linguistic Shuʿūbiya and Early Neo-Persian Prose. *JAOS*, Vol. 94.

——. 1978. *Persian Medical Manuscripts at the University of California, Los Angeles.* Malibu.

——.1980. *Masā'il majūsiyya. Mulāḥazāt fī mu'allif al-Malakī*: Kāmil al-ṣināʿa al-ṭibbiyya. *JHAS*, Vol. 4.

——. 1994. Abū Bakr al-Rāzī's (Rhazes) Medical Works. In: *Medicina nei Secoli. Arte e Scienza*, Vol. 6, pp. 377–92.

——. 1996. *The World of Ibn Tufayl.* In: L. I. Conrad (ed.), *Islamic Philosophy, Theology and Science*, Vol. 24. Leiden.

SABRA, A. I. 1987. The Appropriation and Subsequent Naturalization of Greek Science in Medieval Islam. A Preliminary Statement. *History of Science*, Vol. 25.

——. 1994. *Optics, Astronomy and Logic. Studies in Arabic Science and Philosophy.* Aldershot.

SAID, H. M. 1973. Ed. with English tr., *Al-Bīrūnī's Book on Pharmacy and Materia Medica.* Karachi.

——. 1975. *Traditional Greco-Arabic Medicine and Modern Western Medicine: Conflict or Symbiosis.* (Title of the paper forming the theme of a discussion/presentation at the University of Bern in 1975 in the series *Islam and the Occident.*)

——. (ed.). 1981. *Medicine in China.* Karachi.

SAID, H. M. (ed.). 1983. *Personalities and Noble Glimpses of Renowned Scientists and Thinkers of Muslim Era.* Karachi.

——. 1991. The Greek Factor in Muslim Pharmacy, a Survey. *Bulletin of the Indian Institute of History of Medicine* Vol. 21, No. 1. Hyderabad.

SALIBA G. 1990. Al-Birūni and the Sciences of his Time. In: *The Cambridge History of Arabic Literature.* M. J. L. Young et al. (eds.), Vol. 3: *Religion, Learning and Science in the ʿAbbasid Period.* Cambridge.

SAVAGE-SMITH, E. 1996. Medicine. In: *Encyclopedia of the History of Arabic Science,* ed. R. Rashed, Vol. 3. London.

SEZGIN, F. 1970. *Geschichte des arabischen Schrifttums,* Vol. 3: *Medizin – Pharmazie – Zoologie – Tierheilkunde bis ca. 430 H.* Leiden.

STOREY, C. A. 1958–71. *Persian Literature, a Biobilbiographical Survey,* Vol. 2: *Mathematics, Weights and Measures, Astronomy and Astrology, Geography, Medicine, Encyclopaedias and Miscellanies. Arts and Crafts, Science, Occult Arts.* London.

THIERRY DE CRUSSOL DES EPESSE, B. 1998. (tr. and notes), *Discours sur l'oeil d'Esma'il Gorgani.* Louvain.

TSARONG, T. J. 1986. *Handbook of Traditional Tibetan Drugs, their Nomenclature, Composition, Use and Dosage.* Kalimpong, Darjeeling.

ULLMANN, M. 1970. *Die Medizin im Islam.* Leiden.

——. 1972. *Die Natur-und Geheimwissenschaften im Islam.* Leiden.

——. 1978. *Islamic Medicine.* Edinburgh.

CHAPTER 13

ARENDS, A. K.; KHALIDOV, A. B.; CHEKHOVICH, O. D. (eds). 1979. *Bukharskiy vakf XIII v.* Moscow.

BATMANOV, I. A. (ed.). 1971. *Drevnie tyurkskie dialekty i ikh otrazhenie v sovremennykh yazykakh.* Frunze.

BAZIN, L. 1975. Turcs et Sogdiens: les enseignements de l'inscription de Bugut (Mongolie). In: *Mélanges linguistiques offertes à Emile Benveniste.* Paris.

BENZING, J. 1968. *Das chwaresmische Sprachmaterial einer Handschrift des 'Muqaddimat al-Adab' von Zamaxšarī,* I, Text. Wiesbaden.

——. 1983. *Chwaresmischer Wortindex.* Wiesbaden.

BLAIR, S. S. 1992. *The Monumental Inscriptions from Early Islamic Iran and Transoxiana.* Leiden.

BOL'SHAKOV, O. G. 1958. Arabskie nadpisi na polivnoy keramike Sredney Azii IX-XII vv. *Epigrafika Vostoka,* Vol. 12, pp. 23–8; Vol. 15, 1963, pp. 73–87; Vol. 16, 1963, pp. 35–55; Vol. 17, 1966, pp. 54–62.

BOSWORTH, C. E. 1969. The Tāhirids and Arabic Culture. *Journal of Semitic Studies,* Vol. 14, pp. 45–79.

BOYCE, M. 1983. Parthian Writings and Literature. In: *The Cambridge History of Iran,* Vol. 3 (2).

BROCKELMANN, C. 1954. *Osttürkische Grammatik der islamischen Litteratursprachen Mittelasiens.* Leiden.

BROWNE, E. G. 1908. *A Literary History of Persia,* Vol. 1: *From the Earliest Times until Firdawsí.* London.

CHEKHOVICH, O. D. (ed.). 1965. *Bukharskie dokumenty XIV veka*. Tashkent.
CLAUSON, Sir Gerard. 1972. *An Etymological Dictionary of Pre-Thirteenth-Century Turkish*. London.
DANKOFF, R. 1983. *Yusuf Khass Hajib. Wisdom of Royal Glory (Kutadgu Bilig), A Turko-Islamic Mirror of Princes*. Chicago, Ill.
DOERFER, G. 1963–75. *Türkische und mongolische Elemente im Neupersischen*, Vols. 1–4. Wiesbaden.
DRESDEN, M. 1983. Sogdian Language and Literature. In: *Cambridge History of Iran*, Vol. 3 (2).
Drevnetyurkskiy slovar'. 1969. Leningrad.
ECKMANN, J. 1959*a*. Das Chwarezmtürkische. In: *Philologiae Turcicae Fundamenta*, I, pp. 113–37. Wiesbaden.
——. 1959*b*. Das Tschagataische. In: *Philologiae Turcicae Fundamenta*, I, pp. 138–60. Wiesbaden.
——.1966. *Chagatay Manual*. Bloomington, Ind. (Indiana University Uralic and Altaic Series, Vol. 60.)
EI[2], art. 'Kāmūs. 2. Persian lexicography' (D. N. MacKenzie).
ERDAL, M. 1979. Die Morphemfuge im Alttürkischen. *Wiener Zeitschrift für die Kunde des Morgenlandes*, Vol. 71, pp. 83–114.
——. 1991. *Old Turkic Word Formation. A Functional Approach to the Lexicon*, I–II. Wiesbaden.
FAZYLOV, E. 1966–71. *Starouzbekskiy yazyk. Khorezmiyskie pamyatniki XIV veka*. Tashkent. 2 vols.
FLURY, S. 1925. Le décor épigraphique des monuments de Ghazna. *Syria*, Vol. 6, pp. 61–90.
FREIYMAN, A. A. 1934. *Sogdiyskiy sbornik*. Leningrad.
——. 1966. *Sogdiyskiye dokumenty s gory Mug*, Vol. 1. Moscow.
GABAIN, A. VON. 1963. 'Die zentralasiatische Türksprachen' and 'Zentralasiatische türkische Literaturen I: Vorislamische alttürkische Literatur'. In: *Handbuch der Orientalistik*, V, 1, pp.139–60, 207–28. Leiden.
——. 1974. *Alttürkische Grammatik*. 3rd ed. Leipzig.
GERSHEVITCH, I. 1980. The Bactrian Fragment in Manichaean Script. *Acta Antiqua*, Vol. 28.
GOLOMBEK, L.; WILBER, D. 1988. *The Timurid Architecture of Iran and Turan*. Princeton, N.J. 2 vols.
GRENET, F.; SIMS-WILLIAMS, N. 1987. The Historical Context of the Sogdian Ancient Letters. In: *Transition Periods in Iranian History. Studia Iranica*, Cahier 5.
HANSEN, O. 1934. Zur soghdischen Inschrift auf dem dreisprachigen Denkmal von Karabalgasun. *Journal de la Société Finno-ougrienne*.
——. 1968. Die buddhistische und christlische Literatur. In: *Iranistik*, 2, *Literatur, Handbuch der Orientalistik*, I.4.2. Leiden.
HENNING, W. B. 1939. Sogdian Loan-Words in New Persian. *BSOAS*, Vol. 10.
——. 1957. The Inscriptions of Tang-i Azao. *BSOAS*, Vol. 20.
——. 1958. Mitteliranische. In: *Iranistik*, 1, *Linguistik, Handbuch der Orientalistik*, I.4.1. Leiden.
——. 1965. The Choresmian Documents. *AM*, N.S., Vol. 11.

JOHANSON, L. 1979. *Alttürkisch als 'dissimilierende Sprache'*. Akademie der Wiss. und der Literatur, Abh. der geistes- und sozialwissenschaftlichen Klasse, 2. Mainz.

KARA, G. 1996*a*. Aramaic Scripts for Altaic Languages. In: P. T. Daniels and W. Bright, *The World's Writing Systems*. New York/Oxford.

——. 1996*b*. Siniform Scripts of Inner Asia. In: P. T. Daniels and W. Bright, *The World's Writing Systems*. New York/Oxford.

KHADR, M. 1967. Deux actes de *waqf* d'un Qaraḫānide d'Asie Centrale. *JA*, Vol. 255, pp. 305–34.

KLYASHTORNY, S. G.; LIVSHITS, V. A. 1972. The Sogdian Inscription of Bugut Revised. *AOHung*, Vol. 26.

KOMAROFF, L. 1992. Persian Verses of Gold and Silver. The Inscriptions on Timurid Metalwork. In: L. Golombek and M. Subtelny (eds.), *Timurid Art and Culture: Iran and Central Asia in the Fifteenth Century*, pp. 144–57. Leiden.

KONONOV, A. N. 1980. *Grammatika yazyka tyurkskikh runicheskikh pamyatnikov VII–IX vv.* Leningrad.

KRACHKOVSKAYA, V. A. 1949. Evolyutsia kuficheskogo pis'ma v Sredney Azii. *Epigrafika Vostoka*, Vol. 3, pp. 3–27.

KRACHKOVSKAYA, V. A.; KRACHKOVSKIY, I. YU. 1934. Drevneyshiy arabskiy dokument iz Sredney Azii. *Sogdiyskiy sbornik*. Leningrad.

KUIJP, L. W. J. VAN DER. 1996. The Tibetan Script and Derivatives. In: P. T. Daniels and W. Bright (eds.), *The World's Writing Systems*. New York/Oxford.

LAZARD, G. 1963. *La langue des plus anciens monuments de la prose persane*. Paris.

——. 1968. La dialectologie du judéo-persan. *Studies in Bibliography and Booklore*, Vol. 8.

——. 1987. Le judéo-persan ancien entre le pehlevi et le persan. In: *Transition Periods in Iranian History. Studia Iranica*, Cahier 5. Paris.

——. 1988. Remarques sur le fragment judéo-persan de Dandān-Uiliq. In: *A Green Leaf, Papers in Honour of Prof. Jes Asmussen. Acta Iranica*, Vol. 28. Paris.

——. 1990. Pârsi et dari: Nouvelles remarques. *Aspects of Iranian Culture In Honour of R. N. Frye. Bulletin of the Asia Institute*, N.S., Vol. 4.

LENTZ. W. 1926. Die nordiranischen Elemente in der neupersischen Literatursprache bei Firdosi. *Zeitschrift für Indologie und Iranistik*, Vol. 4.

LIGETI, L. 1981. Prolegomena to the Codex Cumanicus. *AOHung*, Vol. 35, pp. 1–54.

LIVSHITS, V. A. 1970. A Sogdian Alphabet from Panjikant. In: M. Boyce and I. Gershevitch (eds.), *W. B. Henning Memorial Volume*. London.

MACKENZIE, D. N. 1989. Khwarezmian in the Law Books. In: C. H. de Fouchécour and Ph. Gignoux (eds.), *Etudes Irano-Aryennes offertes à Gilbert Lazard. Studia Iranica*, Cahier 7. Paris.

——. 1990. *The Khwarezmian Element in the Qunyat al-Munya*. London.

MANSUROĞLU, M. 1959. Das Karakhanidische. *Philologiae Turcicae Fundamenta*, Vol. 1, pp. 87–112. Wiesbaden.

MÜLLER, F. W. K. 1907. Die persischen Kalenderausdrücke. *SPAW.*

RÖHRBORN, K. 1977 (continuing publication). *Uigurisches Wörterbuch*. Wiesbaden.

RÖHRBORN, K.; BEENKER, W. (eds.). 1983. *Sprachen des Buddhismus in Zentralasien*. Veröffentlichungen der Societas Uralo-Altaica, Bd. 16. Wiesbaden.

SHCHERBAK, A. M. 1961. *Grammaticheskiy ocherk yazyka tyurkskikh tekstov X–XIII vv. iz Vostochnogo Turkestana.* Moscow/Leningrad.

——. 1962. *Grammatika starouzbekskogo yazyka.* Moscow/Leningrad.

SHISHKIN, V. A. 1970. Nadpisi v ansambli Shakhi-Zinda. In: *Zodchestvo Uzbekistana*, Vol. 2: *Ansambl' Shakhi-Zinda*, pp. 7–71. Tashkent.

SIMS-WILLIAMS, N. 1981. The Sogdian Sound-System and the Origin of the Uighur Script. *JA*, Vol. 269.

——. 1983. Indian Elements in Parthian and Sogdian. In: K. Röhrborn and W. Beenker (eds.), *Sprachen des Buddhismus in Zentralasien.* Wiesbaden.

——. 1989*a*. Sogdian and Other Iranian Inscriptions of the Upper Indus I. *Corpus Inscriptionum Iranicum*, Vol. 3. London.

——. 1989*b*. Bactrian Language. In: *EIr*, Vol. 3.

SINOR, D. 1939. A propos de la biographie ouïgoure de Hiuan-tsang. *JA*, Vol. 2, pp. 543–90.

SMIRNOVA, O. I. 1963. *Katalog monet s gorodishcha Penjikent.* Moscow.

——. 1981. *Svodniy katalog Sogdiyskikh monet.* Moscow.

STERN, S. M. 1969. A Manuscrit from the Library of the Ghaznawid Amīr ʿAbd al-Rashid. In: R. Pinder-Wilson (ed.), *Paintings from Islamic Lands*, pp. 7–31. Oxford.

SUNDERMANN, W. 1989. Ein manichäischer Bekenntnistext in neuperssischer Sprache. In: *Etudes Irano-Aryennes offertes à G. Lazard. Studia Iranica*, Cahier 7. Paris.

TAFAZZOLI, A. 1973. Three Sogdian Works in the Kitāb al Hurūf. *Bulletin of the Iranian Culture Foundation*, Vol. 1, Part 2.

——. 1974. Some Middle Persian Quotations in Classical Arabic and Persian Texts. In: Ph. Gignoux and A. Tafazzoli (eds.), *Mémorial Jean de Menasce.* Tehran/Louvain.

——. 1991. L'inscription funéraire de Kāzerūn II (Parishān). *Studia Iranica*, Vol. 20.

TOGAN, Z. V. 1951. *Muqaddimat al-adab with the Translation in Khorezmian.* Istanbul.

——. 1963. Zentralasiatische Türkische Literaturen II: Die islamische Zeit. In: *Handbuch der Orientalistik*, Vol. V, 1, pp. 229–49. Leiden.

TOLSTOV, S. P. 1948. *Po sledam drevnekhorezmiskoy tsivilizatsii.* Moscow. German tr. O. Mehlitz, *Auf den Spuren der altchoresmischen Kultur.* Berlin, 1948.

TOLSTOV, S. P.; LIVSHITS, V. A. 1964. Decipherment and Interpretation of the Khwarezmian Inscriptions from Tok Kala. *AAHung*, Vol. 12.

UTZ, D. A. 1980. *A Survey of Buddhist Sogdian Studies.* Tokyo.

VAIYNBERG, B. I. 1977. *Monety drevnego Khorezma.* Moscow.

VASIL'EV, D. D. 1983. *Graficheskiy fond pamyatnikov tyurkskoy runicheskoy pis'mennosti aziatskogo areala.* Moscow.

VERSTEEGH, K. 1997. *The Arabic Language.* Edinburgh.

VOLOV [GOLOMBEK], L. 1966. Plaited Kufic on Samanid Epigraphic Pottery. *Ars Orientalis*, Vol. 6, pp. 107–34.

ZAJACZKOWSKI, A. 1954–8. *Vocabulaire arabe-kiptchak de l'époque de l'Etat Mamelouk.* Warsaw. (2nd vol. published first). 2 vols.

Chapter 14

ASADĪ TŪSĪ. 1319/1940. *Lughat-i furs.* Ed. Abbās Iqbāl. Tehran.

BAYEVSKIY, S. I. 1989. *Rannyaya persidskaya leksikografiya XI–XV vv.* Moscow.

BERTHEL'S, E. E. 1941. Literatura epokhi Nizami. *Izvestiya Akademii Nauk SSSR*, No. 2.

——. 1960. *Istoriya persidsko-tadzhikskoy literatury.* Moscow.

BOSWORTH, C. E. 1963. A Pioneer Arabic Encyclopaedia of the Sciences: Al-Khwārizmī's 'Keys of the Sciences'. *Isis*, Vol. 54, pp. 97–111. Repr. in: *Medieval Arabic Culture and Administration*, No. 1. London, 1983.

——. 1969. Abū ᶜAbdallāh al-Khwārazmī on the Technical Terms of the Secretary's Art. *Journal of the Economic and Social History of the Orient*, Vol. 12, pp. 113–64. Repr. in: *Medieval Arabic Culture and Administration*, No. 15. London, 1983.

——. 1990. Al-Khwārazmī on Various Faiths and Sects, Chiefly Iranian. In: *Papers in Honour of Professor Ehsan Yarshater.* Acta Iranica, Textes et Mémoires, Vol. 16, pp. 10–19. Leiden. Repr. in: *The Arabs. Byzantium and Iran. Studies in Early Islamic History and Culture*, No. 18. Aldershot, 1996.

BRENTJES, S. 1988–9. Das Kapitel *ᶜilm al-aritmātīqī* aus der persischen Wissenschaft-Enzyklopädie von Faḫr al-Dīn ar-Rāzī. Edition, Übersetzung und Kommentar. *Persica*, Vol. 13, pp. 77–106.

BROWNE, E. G. 1906. *A Literary History of Persia*, Vol. 2: *From Firdawsí to Saᶜdí.* London.

——. 1908. *A Literary History of Persia*, Vol. 1: *From the Earliest Times until Firdawsí.* London.

——. 1929. *A Literary History of Persia*, Vol. 3: *A History of Persian Literature under Tartar Dominion (A.D. 1265–1502).* Cambridge.

DĀNISH-PAZHŪH, M. T.; AFSHĀR, I. (eds.). 1375/1996. *Mujmal al-hikma.* Tehran.

EI², art. Ḳāmūs. 2. Persian lexicography (D. N. MacKenzie).

FOUCHÉCOUR, C.-H. DE. 1986. *Moralia.* Paris.

GOHLMAN, W. E. 1974. *The Life of Ibn Sina. A Critical Edition and Annotated Translation.* New York.

IBN FARĪGHŪN. 1985. *Jawāmiᶜ al-ᶜulūm.* Facsimile ed. by F. Sezgin. Frankfurt.

IBRĀHĪM, BADR AL-DĪN. 1974. *Farhangi-zabāngūya va jahānpūra.* Ed. S. I. Baievskiy. Moscow.

JAMASPJI, D. H. 1867. *An Old Zand-Pahlavi Glossary.* Bombay/London/Stuttgart.

JUNKER, H. F. J. 1912. *Das Frahang-i pahlavik in zeichengemässer Anordnung.* Iranische Texte und Hilfsbucher. Leipzig. New ed., *The Frahang-i pahlavik.* Heidelberg, 1955.

KAPRANOV, V. A. 1964. *Lugati furs' Asadi Tusi i ego mesto v istorii tadzhikskoy (farsi) leksikografi.* Dushanbe.

——. 1987. *Tadzhiksko-persidskaya leksikografiya v. Indii XVI–XIX vv.* Dushanbe.

KHEDĪVJĀM, H. 1350/1972. *Kitāb-i Jawāmiᶜ al-ᶜulūm.* In: H. Yaghmā'ī (ed.), *Yād-nāma-yi Mīnūwī.* Tehran.

AL-KHWĀRAZMĪ, ABŪ ᶜABD ALLĀH MUHAMMAD IBN AHMAD. 1968. *Mafātīh al-ᶜulūm.* Leiden. Repr. of 1895 ed.

MINORSKY, V. 1962. Ibn Farighūn and the *Hudūd al-ᶜĀlam*. In: W. B. Henning and E. Yarshater (eds.), *A Locust's Leg. Studies in Honour of S. H. Taqizadeh*, pp. 189–96. London.

MUNZAVĪ, ᶜALĪ NAQĪ. 1337/1958. *Farhang-i ᶜarabī ba fārsī*. Tehran.

NAFĪSĪ, S. 1311/1933. Qadīmītarīn kutub-i lughat dar Irān. In: *Majalla-yi Sharq*, No. 7. Tehran.

PERTSCH, W. 1888. *Verzeichniss der persischen Handschriften der Königlichen Bibliothek zu Berlin*. Berlin.

POURJAVADY, A. H. 1372/1993. ᶜIlm-i mūsīqi bargirifta az Jāmiᶜ al-ᶜUlūm-i Fakhraddīn Rāzi. *Ma'ārif*, Vol. 10, 2–3. Tehran.

REICHELT, H. 1900–1. Der Frahang-i oim. *WZKM*, Vols. 14–15.

RYPKA, J., et al. 1968. *History of Iranian Literatures*. Dordrecht.

SALEMANN, C. 1888. Bericht über die Ausgabe des Miᶜjar-i Jamali. *Bulletin de l'Académie impériale des sciences de St. Petersbourg*, Vol. 9.

STOREY, C. A. 1977. *Persian Literature. A Bio-Bibliographical Survey*, Vol. 2, Part 3: *F. Encyclopaedias and Miscellanies*. London.

——. 1984. *Persian Literature. A Bio-Bibliographical Survey*, Vol. 3, Part 1: *Lexicography, Grammar, Prosody and Poetics*. London.

TĀLIᶜ IMĀMĪ HARĀTĪ. 1961. *Badā'iᶜ al-lugha*. Ed. A. K. Borovkov. Dushanbe.

ZAROMAZADE. G. G. 1970. Sravnenie 'Sikhakh al-Adzham' i 'Sikhakh al-Furs'. In: *Iranskaya filologiya*.

CHAPTER 15

ABDULLOEV, I. 1984. *Poesiya na arabskom yazyke v Srednei Asii i Khurasane v X – nachale XI vv*. Tashkent.

ANOKHIN, A. V. 1924. *Materialy po shamanstvu u altaitsev*. Leningrad.

ANON. 1947. *Niurgun Bootur stremitel'nyy*. Yakutsk.

ANON. 1973. *Altan tobchi*. Moscow.

ANON. 1978–82. *Manas*. (Sagymbai Orozbakov version.) Frunze. 3 vols.

ANON. 1984–91. *Manas*. (Sayakbai Karalaev version.). Frunze. 4 vols.

ANON. 1985. *Alyp-Manas*. (Altaic Heroic Yales.) Gorno-Altaisk.

ARBERRY, A. J. 1958. *Classical Persian Literature*. London.

BARTHOLD, W. 1962. Mir ᶜAli Shīr. In: *Four Studies on the History of Central Asia*, Vol. 3, pp. 1–72. English tr. V. and T. Minorsky. Leiden.

BASHAM, A. L. 1967. *The Wonder that Was India*. London.

BAUSANI, A. 1958. *Storia delle letterature del Pakistan*. Milan.

BHATTACHARJI, S. 1993. *History of Classical Sanskrit Literature*. Calcutta.

BHAYANI, H. C. 1957. The Prince of Wales Museum Stone Inscription from Dhar. *Bhāratīya Vidyā*, Vol. 17, 1957, p. 130–46; Vol. 19, 1959, p. 116–28. Bombay.

BOMBACI, A. 1956. *Storia della letteratura turca*. Milan. French tr. I. Mélikoff, *Histoire de la littérature turque*. Paris, 1968.

BORATAV, P. N. (ed.) 1964. *Fundamenta philologiae turcica*, Vol. 2. Wiesbaden.

BROWNE, E. G. 1906–20. *A Literary History of Persia*, Vols. 1–3. London/Cambridge.

CALLEWAERT, W. M.; FRIEDLANDER, P. G. 1992. *The Life and Works of Raidās*. New Delhi.

DAMES, M. L. 1907. *Popular Poetry of the Baloches*. London. 2 vols.
DIVAEV, A. A. 1889. *Iz oblasti kirgizskikh verovaniy*. Kazan.
EI², arts. Īrān. vii. Literature (J. T. P. de Bruijn); Ḳaṣīda. 2. In Persian (C.-H. de Fouchécour); Mathnawī. 2. In Persian; Shiʿr. 2. In Persian (J. T. P. de Bruijn); Turks. III. Literature (B. Flemming et al.); Ḥamāsa. iv. Central Asia; Manas (A. T. Hatto).
GRIERSON, G. A.; BARNETT, L. D. (ed. and tr.). 1920. *Lallā-vākyānī, or the Wise Sayings of Lal Ded*. London.
HATTO, A. T. 1977. *The Memorial Feast for Kökötöy-Khan*. Oxford.
JHA, S. (ed. and tr.). 1954. *The Songs of Vidyāpati*. Banaras.
KACHRU, B. B. 1981. *Kashmiri Literature*. Wiesbaden.
KEITH, A. B. 1928. *A History of Sanskrit Literature*. Oxford.
KOHLI, S. S. 1961. *A Critical Study of Adi Granth*. New Delhi.
KOROGLY, K. 1972. Shaman, polkovodets, ozan. *Sovietskaya Tyurkologiya*.
KOSHAN, G. H. (tr.). 1979. *Mohammad Hotak: Pata Khazāna*. Kabul.
KYDYRBAEVA, R. Z. 1980. *Genezis êposa 'Manas'*. Frunze.
KYRGYZ, Z. 1993. *Ritmy shamanskogo bubna*. Kyzyl.
LATHAM, J. D. 1990. Ibn al-Muqafaʿ and Early Arabic Prose. In: J. Ashtiany et al. (eds.), *The Cambridge History of Arabic Literature*, Vol. 2: *ʿAbbasid Belles-Lettres*, pp. 48–77. Cambridge.
LAZARD, G. 1964. *Les premiers poètes persans (IXᵉ–Xᵉ siècles)*. Tehran/Paris.
LEVY, R. 1969. *An Introduction to Persian Literature*. New York/London.
MACAULIFFE, M. A. 1909. *The Sikh Religion*, Vol. 6. Oxford.
MAHESHWARI, H. 1980. *History of Rajasthānī Literature*. New Delhi.
MALOV, S. E. 1951. *Pamyatniki drevnetyurkskoy pis'mennosti*. Moscow/Leningrad.
MCGREGOR, R. S. 1984. *Hindi Literature from its Beginnings to the Nineteenth Century*. Wiesbaden.
MILLER, B. S. (ed. and tr.). 1977. *Gītagovinda of Jayadeva: Love Song of the Dark Lord*. Delhi.
PANDEY, S. 1978. Maulānā Dāūd and his Contribution to the Hindi Sūfī Literature. *AIUON*, Vol. 38, pp. 75–90.
PENZER, M. A. (ed.). 1968. *The Ocean of Story, being C. H. Tawney's Translation of Somadeva's Kathāsaritsāgara*. Delhi. 10 vols.
RADLOFF, W. 1884. *Aus Siberien. Lose Blätter aus dem Tagebuche eines reisenden Linguisten*. Leipzig. 2 vols.
——. 1885. *Obraztsy narodnoi literatury severnykh tyurkskikh plemen*, No. 5. St Petersburg.
RADLOV, V. V. 1989. *Iz Sibiri (stranitsy dnevnika)*. Moscow.
RAESIDE, I. M. P. 1992. A Gujarati Bardic Poem: The Kānhadade-prabandha. In: C. Shackle and R. Snell (eds.), *The Indian Narrative: Perspectives and Patterns*, pp. 137–53. Wiesbaden.
RYPKA, J. et al. 1968. *History of Persian Literature*. Dordrecht.
SCHIMMEL, A. 1974. *Sindhi Literature*. Wiesbaden.
——. 1975. *Classical Urdu Literature from the Beginning to Iqbāl*. Wiesbaden.
SEN, S. 1971. *Chandidas*. New Delhi.

SHACKLE, C. 1993. Early Muslim Vernacular Poetry in the Indus Valley: Its Contexts and its Character. In: A. L. Dallapiccola and S. Zingel-Avé Lallemant (eds.), *Islam and Indian Regions*, Vol. 1, pp. 259–89. Stuttgart.

SHACKLE, C.; MOIR, Z. (eds.). 1992. *Ismaili Hymns from South Asia: An Introduction to the Ginans*. London.

SMITH, J. D. (ed.). 1976. *The Vīsaladevarāsa: A Restoration of the Text*. Cambridge.

STEIN, M. A. (tr.). 1900–1. *Kalhana's Rājataranginī: A Chronicle of the Kings of Kaśmīr*. Westminster. 2 vols.

VALIKHANOV, C. C. 1961. *Sobranie sochinenii v 5 tomakh*, Vol. 1. Alma-Ata.

VASILEVICH, G. M. 1969. *Evenki. Istoriko-êtnograficheskie ocherki (XVIII–XX vv.)*. Leningrad.

VAUDEVILLE, C. 1962. *Les duhā de Dholā-Mārū*. Pondicherry.

——. 1974. *Kabīr*, Vol. 1. Oxford.

——. 1986. *Bārahmāsā in Indian Literatures*. Delhi.

YAKOVLEV, E. G. 1985. *Iskusstvo i mirovye religii*. Moscow.

YARSHATER, E. (ed.). 1988. *Persian Literature*, Section III: *The Classical Period*. Albany, N.Y.

ZAND, M. 1967. Some Light on Bilingualism in Literature of Transoxania, Khurasan and Western Iran in the 10th Century A.D. In: *Yádnáme-ye Jan Rypka. Collection of Articles on Persian and Tajik Literature*, pp. 161–4. Prague.

ZHIRMUNSKIY, V. 1962. *Narodniy geroicheskiy êpos*. Moscow/Leningrad.

CHAPTER 16

ABU 'L- FADL BAYHAQĪ. 1969. *Tārīkh-i Masʿūdī*. Russian tr. A. K. Arends, *Istoriya Masʿuda*. Moscow.

AKHRAROV, I.; REMPEL', L. I. 1971. *Reznoy shtuk Afrasiyaba*. Tashkent.

ARNOLD, T. 1928. *Painting in Islam*. London.

AUBOYER, I. 1968. *Afganistan und seine Kunst*. Prague.

BAER, E. 1965. The Sphinxes and Harpies in Medieval Islamic Art. *Oriental Notes and Studies*, Vol. 9. Jerusalem.

BAHRAMI, M. A. 1952. Gold Medal in Freer Gallery of Art. In: *Archaeologica Orientalia in Memoriam Ernest Herzfeld*. New York.

BARRETT, D. 1949. *Islamic Metalwork in the British Museum*. London.

BEAUPERTUIS-BRESSAND, F. 1997. *The Blue Gold of Samarkand*. Savigny-sur-Orge.

BIDDER, H. 1964. *Carpets from Eastern Turkestan Known as Khotan, Samarkand and Kansu Carpets*. London.

BLOCHET, E. 1929. *Musulman Painting, XIIth to the XVIIth Centuries*. London.

BOL'SHAKOV, O. G. 1969. Islam i izobrazitel'noye iskusstvo. *Trudy gosudarstvennogo Ermitazha*, Vol. 10. Leningrad.

BRITTON, N. P. A. 1938. *Study of Some Early Islamic Textiles in the Museum of Fine Arts*. Boston, Mass.

CASAL, J.-M. 1961. *Fouilles de Mundigak*. Paris.

CRESWELL, K. 1946. The Laws of Painting in Early Islam. *Ars Islamica*, Vols. 11–12.

DARKEVICH, V. P. 1974. *Khudozhestvennyy metall Vostoka. VIII–XIII vv.* Moscow.

DIMAND, M. A. 1937*a*. Studies in Islamic Ornament. Some Aspects of Omayyad and Early Abbasid Ornament. *Ars Islamica*, Vol. 4.

——. 1937*b*. Sasanian and Islamic Metalwork. In: A. U. Pope (ed.), *A Survey of Persian Art*, Vol. 4. London/New York.

ETTINGHAUSEN, A. 1935. Fourteenth Century Metal Bowl. *Bulletin of the American Institute for Persian Art and Archaeology*, Vol. 4, No. 1.

FAKHRETDINOVA, D. A. 1988. *Yuvelirnoe iskusstvo Uzbekistana*. Tashkent.

FEHERVARI, G. 1963. Two Early Abbasid Lustre Bowls and the Influence of Central Asia. *Oriental Art*, Vol. 9, No. 2.

FIL'SHTINSKIY, I. M. 1971. *Ocherki arabo-musul' manskoy kul' tury*. Moscow.

GHOSH, A.; PANIGRAPHI, K. C. 1945. The Pottery of Ahichchhatra. *Ancient India*, Vol. 1, pp. 40–55.

GOLOMBEK, L. 1972. *Toward a Classification of Islamic Painting*. New York. (Islamic Art in the Metropolitan Museum, No. 4.)

GRABAR, O. 1973. *The Formation of Islamic Art*. New Haven, Conn./London.

HAKIMOV, A. A. Iz mira obrazov i motivov prikladnogo iskusstva Maverannakhra IX–nachala XIII vv. *Obshchestvennye nauki v Uzbekistane*, Nos. 6–7.

——. 1983. *Khudozhestvennaya kul' tura Sredney Azii IX–III vv. Sbornik statey*. Tashkent.

HALIM, M. A. 1972. Excavation at Sarai Khola, Part II. *Pakistan Archaeology*, Vol. 8, pp. 1–112.

HARARI, R. 1939. Metalwork of Later Islamic Periods. In: A. U. Pope (ed.), *A Survey of Persian Art*, Vol. 3. London/New York.

HENNING, W. B. 1959. Shepherd D. S. Zandaniji Identified? In: *Aus der Welt der Islamischen Kunst. Festschrift fur E. Kuhnel*. Berlin.

KOZLOV, P. K. 1948. *Mongoliya i Amdo i myortviy gorod Karakhoto*. Moscow.

LANE, A. 1947. *Early Islamic Pottery*. London.

MARSHAK, B. I. 1971. *Sogdiyskoe serebro*. Moscow.

MARSHALL, Sir John. 1951. *Taxila. An Illustrated Account of Archaeological Excavations Carried out at Taxila under the Orders of the Government of India Between the Years 1913 and 1934*. Cambridge. 3 vols.

MAYER, L. A. 1959. *Islamic Metalworkers and Their Works*. Geneva.

METS, A. 1966. *Musul'manskiy Renessans*. Moscow.

MOGIL'NIKOV, V. A. 1981. Sibirskiye drevnoti VI–X vv. *Stepi evrazii v epokhu srednevokov'ya*. Moscow.

MUGHAL, M. R. 1967. Excavations at Tulamba, West Pakistan. *Pakistan Archaeology*, Vol. 4, pp. 11–152. Karachi.

NOVGORODOVA, E. A. 1989. Kypchakskie svyatilishcha na yuge Kazakhstana (Sandykskiy pereval, g. Merke). *Uchenye zapiski Komissii po izucheniyi pamyatnikov tsivilizatssi drvnego i srednevokovogo Vostoka*. Moscow.

NOWGORODOWA, E. 1980. *Alte Kunst der Mongolei*. Leipzig.

POPE, A. U. (ed.). 1938–9. *A Survey of Persian Art*. London/New York.

——. 1945. *Masterpieces of Persian Art*. New York.

PUGACHENKOVA, G. A. 1967. *Iskusstvo Turkmenistana*. Moscow.

PUGACHENKOVA, G. A.; REMPEL', L. I. 1965. *Istoriya iskusstv Uzbekistana*. Moscow.

——; ——. 1982. *Ocherki iskusstva Sredney Azii*. Moscow.

PUGACHENKOVA, G. A.; REMPEL', L. I. 1987. *Iz khudozhestvennoy sokrovishchnitsy Srednego Vostoka.* Tashkent.
RAHMAN, A. 1968–9. Excavation at Damkot. *Ancient Pakistan*, Vol. 4. Peshawar.
REMPEL', L. I. 1961. *Arkhitekturniy ornament Uzbekistana.* Tashkent.
SCHLUMBERGER, D. 1952. Le palais ghaznévide de Lashkari Bazar. *Syria*, Vol. 29. Paris.
——. 1978. *Lashkari Bazar. I. A. L'architecture*, Vol. XVIII. Paris.
SERJEANT, R. G. 1972. *Material for a History of Islamic Textiles up to the Mongol Conquest.* Beirut.
SHEPHERD, D. G. 1974. Banquets and Hunt in Medieval Islamic Iconography. In: *Gathering in Honor of E. Miner.* Baltimore, Md.
SIREN, O. 1956. Central Asian Influences in Chinese Painting of the T'ang Period. *Ars Asiatique*, Vol. 3.
SMIRNOVA, O. A. 1970. *Ocherki po istorii Sogda.* Moscow.
TASHKHOJAEV, S. S. 1967. *Khudozhestvennaya keramika Samarkanda IX–nachala XIII vv.* Tashkent.
VEYMARN, B. V. 1974. *Iskusstvo arabskikh stran i Irana.* Moscow.
VIKTOROVA, L. L. 1985. Nekotorye pamyatniki mongol'skogo iskusstva srednikh vekov i ikh istoriko-êtnograficheskoe znachenie. *UNESCO Information Bulletin*, Vol. 8.
WHEELER, Sir R. Mortimer. 1962. *Charsada, a Metropolis of the North-West Frontier, Being a Report on the Excavations of 1958*, pp. 37–102. London.
WILKINSON, C. K. 1974. *Nishapur. Pottery of the Islamic Iran. The Il-Khanid Period.* New York.
WILLIAM OF RUBRUCK. 1911. *Puteshestvie v vostochnye strany.* Russian tr. St Petersburg.
WILLIAM OF RUBRUCK. 1990. *The Mission of Friar William of Rubruck. His Journey to the Court of the Great Khan Möngke 1253–1255.* English tr. P. Jackson. Introduction, Notes and Appendices by P. Jackson and D. Morgan. Harkluyt Society, 2nd Series, Vol. 173. London.

CHAPTER 17

AKIMUSHKIN, O. F.; IVANOV, A. A. 1979. The Art of Illumination. In: B. Gray (ed.), *The Arts of the Book in Central Asia.* Paris/London.
ARBERRY, A. J. 1972. *The Koran Illuminated. A Handlist of the Korans in the Chester Beatty Library.* Dublin.
Arts of Islam, The. 1976. Arts Council of Great Britain. London. (Exhibition at the Hayward Gallery, 8 April–4 July 1976.)
ASHRAFI, M. M. 1974. *Persidsko-tadzhikskaya poêziya v miniatyurakh XIV–XVII vv.* Dushanbe.
——. 1987. *Bekhzad i razvitie bukharskoy shkoly miniatyury XVI v.* Dushanbe.
——. 1988. Where was the Portrait of Ulugh Beg Painted? *Iranian Studies*, Vol. 21, Nos. 1–2.
ASLANAPA, O. 1979. The Art of Bookbinding. In: B. Gray (ed.), *The Arts of the Book in Central Asia.* Paris/London.
ATĀBĀI, B. 1972. *Fihrist-i Qur'ān-hā-yi khattī-yi Kitābkhāna-yi Saltanatī.* Tehran.

BAHARI, E. 1987. *Bihzad, Master of Persian Painting*. London.

BAHRĀMĪ, M.; BAYĀNĪ, M. 1949. *Rāhnamā-yi Qur'ān dar Mūza-yi Īrān Bāstān*, Part 1 (M. Bahrāmī): *Tadwīn-i Qur'ān wa maqām-ān dar tārīkh*; Part 2 (M. Bayānī): *Fihrist-i Qur'ān-ha*. Tehran.

BEGLEY, W. E. 1985. *Monumental Islamic Calligraphy from India*. Chicago, Ill.

BOSCH, G.; CARSWELL, J.; PETHERBRIDGE, G. 1981. *Islamic Bindings and Bookmaking*. Chicago, Ill.

BOSSON, J. 1995. Scripts and Literacy in the Mongol World. In: Patricia Berger and Terese Tse Bartholomew (eds.), *Mongolia: The Legacy of Chinggis Khan*. San Francisco, Calif.

DÉROCHE, F. 1992. The Abbasid Tradition. Qur'ans of the 8th to the 10th Centuries A.D. In: J. Raby (ed.), *The Nasser D. Khalili Collection of Islamic Art*, Vol. 1. Oxford.

DŪST MUHAMMAD. 1965. Traktat o kalligrafakh i khudozhnikakh. In: *Mastera iskusstva ob iskusstve*, Vol. 1. Moscow.

ECKMANN, J. 1976. *Middle Turkic Glosses of the Rylands Interlinear Koran Translation*. Budapest.

EI[2], arts. Bihzād (R. Ettinghausen); Tīmūrids. 3 (a); (c); (d) (D. J. Roxburgh; L. Golombek; L. Comaroff).

ETTINGHAUSEN, R. 1938–9. Manuscript Illumination. In: A. U. Pope (ed.), *A Survey of Persian Art*, pp. 1937–75 and Pls. 926–50. London/New York.

GABAIN, VON, A. 1950. *Alttürkische Grammatik*. Leipzig.

GANJEI, T. 1962. Note on an Unknown Poem of Haidar in Uighur Characters. In: W. B. Henning and I. Yarshater (eds.), *A Locust's Leg: Studies in Honour of S. H. Taqizadeh*. London.

——. 1964. Note on the Colophon of the 'Latāfat-nāma' in Uighur Characters from the Kabul Museum. *AIUON*, Vol. 14.

GOUCHANI, A. 1986. *Inscriptions on Nishapur Pottery*. Tehran.

GRABAR, O. 1969. Notes on the Iconography of the 'Demotte' Shah-nama. In: R. Pinder-Wilson (ed.), *Paintings from Islamic Lands*, pp. 32–47. Oxford.

GRAY, B. 1961. *Persian Painting. Treasures of Asia*. Geneva.

——. 1971. *An Album of Miniatures and Illuminations from the Baysonghori Manuscript of the Shahnameh of Firdowsi Preserved in the Imperial Library*. Tehran.

——. (ed.). 1979. *The Arts of the Book in Central Asia*. Paris/London.

GRUBE, E. 1962. *Muslim Miniature Paintings from the XII–XIX Century from Collections in the United States and Canada*. Venice.

——. 1969. Herat, Tabriz, Istanbul. The Development of a Pictorial Style. In: R. Pinder-Wilson (ed.), *Paintings from Islamic Lands*, pp. 85–109. Oxford.

GULCHĪN-I MAᶜĀNĪ, A. 1969. *Rāhnamā-yi Ganjīna-yi Qur'ān*. Mashhad.

IBN AL-NADĪM. 1970. *The Fihrist of al-Nadim*. English tr. B. Dodge. New York. 2 vols.

JAMES, D. 1980. *Qur'ans and Bindings from the Chester Beatty Library*. London.

——. 1988. *Qur'ans of the Mamlūks*. New York.

——. 1992*a*.The Master Scribes. Qur'ans of the 10th to 14th Centuries. In: J. Raby (ed.), *The Nasser D. Khalili Collection of Islamic Art*, Vol. 2. Oxford.

——. 1992*b*. After Timur. Qur'ans of the 15th and 16th Centuries. In: J. Raby (ed.), *The Nasser D. Khalili Collection of Islamic Art*, Vol. 3. Oxford.

KRACHKOVSKIY, I. YU. 1955. Drevneyshiy arabskiy dokument iz Sredney Azii. In: I. Yu. Krachkovskiy, *Izbrannye sochineniya*, Vol. 1, pp. 182–212. Moscow/ Leningrad.

LENTZ, T. W.; LOWRY, G. D. 1989. *Timur and the Princely Vision*. Washington, D.C.

LINGS, M. 1976. *The Quranic Art of Calligraphy and Illumination*. Westerham, Kent.

LINGS, M.; SAFADI, Y. H. 1976. *The Qur'an*. Westerham, Kent.

LITVINSKY, B. A. 1996. Religious and Religious Movements, I: Part Two, Manichaeism. In: B. A. Litvinsky et al. (eds.), *History of Civilizations of Central Asia*, Vol. 3: *The Crossroads of Civilizations: A.D. 250 to 750*. Paris.

LOSTY, J. P. 1982. *The Art of the Book in India*. London.

MAIR, V. H. 1988. *Painting and Performance. Chinese Picture Recitation and its Indian Genesis*. Honolulu.

MARTIN, F. R.; ARNOLD, T. W. 1926. *The Nizami Manuscript. in the British Museum*. Vienna.

MELIKIAN-CHIRVANI, A. S. 1970. Le roman de Varqua et Golshah. *Arts Asiatiques*, Vol. 22.

PAVET DE COURTEILLE, A. 1882. *Mirâdj-Nâmeh*. Paris.

PEDERSEN, J. 1984. *The Arabic Book*. Princeton, N.J.

PETROSYAN, YU. A.; AKIMUSHKIN, O. F.; ET AL. 1995. *Pages of Perfection*. Lugano.

PIOTROVSKY, M.; et al. 1993. *Lost Empire of the Silk Road: Buddhist Art from Khara Khoto (X–XIIIth Century)*. Milan.

RICE, D. S. 1983. *The Unique Ibn al-Bawwab Manuscripts*. Graz.

RICHARD, F. 1997. *Splendeurs persanes: Manuscrits du XII^e au XVII^e siècle*. Paris.

ROBINSON, B. W. 1965. *Persian Drawings from the Fourteenth Through the Nineteenth Century*. New York.

SÉGUY, M.-R. 1977. *The Miraculous Journey of Mahomet. Mirâj Nâmeh*. London.

SHKUROV, S. M. 1983. *'Shakh-name' Firdousi i rannyaya illyustrativnaya traditsiya*. Moscow.

——. 1989. *Iskusstvo srednevekovogo Irana*. Moscow.

SIMS-WILLIAMS, N. 1981. The Sogdian Sound-System and the Origins of the Uyghur Script. *JA*, pp. 347–60.

SOUCEK, P. 1979. The Arts of Calligraphy. In: B. Gray (ed.), *The Arts of the Book in Central Asia*. Paris/London.

SOUDAVAR, A. 1992. *Art of the Persian Courts: Selections from the Art and History Trust Collection*. New York.

SOURDEL-THOMINE, J. In: *EI*^{2}, art. Ibn al-Bawwāb.

——.; et al. In: *EI*^{2}, art. Khatt.

——. 1987. *Splendeur et Majesté. Corans de la Bibliothèque Nationale*. Paris.

STCHOUKINE, I. 1954. *Les peintures des manuscrits Timourides*. Paris.

——. 1958. Les peintures du Shah-nameh Demotte. *Arts Asiatiques*, Vol. 5, fasc. 2.

——. 1963. La peinture à Yazd au milieu du XV^e siècle. *Syria*, Vol. 40.

——. 1965. Une Khamseh de Nizami illustrée à Yazd entre 1442 et 1444. *Arts Asiatiques*, Vol. 13.

——. 1966*a*. La peinture à Yazd au début du XV^e siècle. *Syria*, Vol. 43.

——. 1966*b*. Les peintures Turcomanes et Safavies d'un Khamseh de Nizami, achevées à Tabriz en 886/1481. *Arts Asiatiques*, Vol. 14.

STERN, S. M. 1969. A Manuscript from the Library of the Ghaznavid Amir ᶜAbd al-Rashid. In: R. Pinder-Wilson (ed.), *Paintings from Islamic Lands*. Oxford.
SŪRĀBĀDĪ, ABŪ BAKR ᶜATĪQ NAYSHĀBŪRĪ. 1966. *Qiṣaṣ-i Qur'ān-i Majīd*. Tehran.
VÁMBÉRY, H. 1870. *Uigurische Sprachmonumente und das Kudatku Bilik*. Innsbruck.
WILKINSON, C. K. 1973. *Nishapur: Pottery of the Early Islamic Period*. Greenwich, Conn.

CHAPTER 18

AFGHAN, K. 1930. *Āthār-i Harāt*. Herat.
ALI, T. 1988. *Anonymous Tombs in the Gomal Valley and the Beginning of Tomb Architecture in Pakistan*. Peshawar.
——. 1993. The Tomb of Shaikh Sadan Shahid and Its Decoration. *Ancient Pakistan*, Vol. 8, pp. 133–40.
ASHFAQUE, S. M. 1969*a*. Excavations at Banbhore. *Pakistan Archaeology*, Vol. 5, pp. 176–85.
——. 1969*b*. Excavations at Mansura. *Pakistan Archaeology*, Vol. 5, pp. 186–202.
——. The Great Mosque at Banbhore. *Pakistan Archaeology*, Vol. 6, pp. 182–209.
BACHINSKIY, N. M. 1939. *Arkhitekturnye pamyatniki Turkmenii*. Moscow.
BASENOV, T. 1974. *Ornament Kazakhstana v arkhitekture*. Alma-Ata.
BEAUPERTUIS-BRESSAND, F. 1997. *The Blue Gold of Samarkand*. Savigny-sur-Orge.
BERNSHTAM, A. N. 1950. *Arkhitekturnye pamyatniki Kirgizii*. Moscow/Leningrad.
BROWN, P. 1964. *Indian Architecture (The Islamic Period)*. Bombay.
BULATOV, B. S. 1978. *Geometricheskaya garmonizatsiya v arkhitekture Sredney Azii IX–XV vv*. Moscow.
CLAVIJO, DON RUY GONZÁLEZ DE. 1928. *Embassy to Tamerlaine, 1403–1406*. English tr. G. Le Strange. London.
COHN-WIENER, E. 1939. *Turan. Islamische Baukunst in Mittelasien*. Berlin.
DANI, A. H.; et al. 1964. Tochi Valley Inscriptions in the Peshawar Museum. *Ancient Pakistan*, Vol. 1, pp. 123–35.
——. 1982. *Thatta. The Islamic Architecture*. Islamabad.
——. 1989. *Islamic Architecture. The Wooden Style of Northern Pakistan*. Islamabad.
DENIKE, B. P. 1939. *Arkhitekturniy ornament Sredney Azii*. Moscow.
DIEZ, E. 1918. *Churasanische Baudenkmäler*. Berlin.
FAROOQ, A. A. 1974–86. Excavations at Mansurah. *Pakistan Archaeology*, Vols. 10–12.
GODARD, A. 1949. Khorasan. *Āthār-é Irān*, Vol. 4, Part. 1. Paris.
GOLOMBEK, L.; WILBER, D., 1988. *The Timurid Architecture of Iran and Turan*. Princeton, N.J.
GORYACHEVA, V. A. 1983. *Srednevekovye gorodskie tsentry i arkhitekturnye ansambli Kirgizii*. Frunze.
HASAN, M. 1968. *In Quest of Daibul*. Karachi.
HILL, D.; GRABAR, O. 1967. *Islamic Architecture and its Decoration. AD 800–1500*. London.
KHAN, A. N. 1983. *Multan. History and Architecture*. Islamabad.
——. 1989. Two Musallah-Mehrabs of the Thirteenth–Fourteenth Centuries at Kabirwala and Pakpatan. *Pakistan Archaeology*, Vol. 24, pp. 239–45.

KHAN, A. N. 1990*a*. *Islamic Architecture of Pakistan*. Islamabad.
——. 1990*b*. *Al-Mansurah*. Karachi.
KHAN, F. A. 1969. *Banbhore*. Karachi.
KHAN, M. N. 1985. A Ghaznavid Historical Inscription from Udegram, Swat. *EW*, Vol. 35, pp. 153–60.
LAVROV, V. A. 1960. *Gradostroitel'naya kul'tura Sredney Azii*. Moscow.
MARGULAN, A. 1959. *Arkhitektura Kazakhstana*. Alma-Ata.
MARICQ, A.; WIET, G. 1959. Le minaret de Djam. La découverte de la capital des sultans ghorides (XII^e^–XIII^e^ siècles). *MDAFA*, Vol. 16.
NATH, R. 1978. *The History of Sultanate Architecture*. New Delhi.
NEMTSEVA, N.; SHVAB, YU. 1979. *Ansambl' Shakhi-Zinda*. Tashkent.
NIEDERMEYER, O.; DIEZ, E. 1924. *Afghanistan*. Leipzig.
NIL'SEN, V. A. 1956. *Monumental'naya arkhitektura Bukharskogo oazisa X–XII vv*. Tashkent.
NUSOV, V. E. 1971. *Arkhitektura Kirgizii s drevneyshikh vremen do nashikh dney*. Frunze.
O'KANE, B. 1987. *Timurid Architecture in Khorasan*. Costa Mesa, Calif.
POPE, A. U. 1938–9. *A Survey of Persian Art from the Prehistoric Times to the Present*. London/New York.
PUGACHENKOVA, G. A. 1958. *Puti razvitiya arkhitektury Yuzhnogo Turkmenistana pory rabovladeniya i feodalizma*. Moscow.
——. 1963. *Iskusstvo Afganistana. Tri êtyuda*. Moscow.
——. 1981. *Chefs-d'oeuvre d'architecture de l'Asie Centrale XIV–XV^e^ siècle*. Paris.
——. 1983. *Pamyatniki iskusstva sosialisticheskikh stran*. Moscow.
PUGACHENKOVA, G. A.; REMPEL', L. I. 1965. *Istoriya iskusstv Uzbekistana s drevneyshikh vremen do serediny XIX veka*. Moscow.
REMPEL', L. I. 1961. *Arkhitekturniy ornament Uzbekistana*. Tashkent.
SCERRATO, U. 1959. Summary Report on the Italian Archaeological Mission in Afghanistan, II: The First Two Excavation Campaigns at Ghazni, 1957–1958. *EW*, Vol. 10, 1–2, pp. 23–55.
——. 1985. Report on the Excavation of a Mosque at Udegram. *EW*, Vol. 35, pp. 439–47.
SCHLUMBERGER, D. 1952. Le palais ghaznévide de Lashkari Bazar. *Syria*, Vol. 29, pp. 251–70.
SCHLUMBERGER, D.; SOURDEL-THOMINE, J. 1978. Lashkari Bazar. Une résidence royale ghaznévide et ghoride, 1A: L'architecture. *MDAFA*, Vol. 18.
SOURDEL-THOMINE, D.; SPULER, B. 1972. *Die Kunst des Islam*. Berlin.
VORONINA, V. L. 1987. *Konstruktsii i khudozhestvenniy obraz v arkhitekture Vostoka*. Moscow.
WADE, D. 1976. *Pattern in Islamic Art*. New York.
YAMAMOTO, T.; et al. 1967. *Delhi. Architectural Remains of the Delhi Sultanate Period*. Tokyo. 3 vols. (In Japanese.)

CHAPTER 19

1. Sources and translations

AL-BALKHĪ, ABŪ ZAYD. 1984. *Masālih al-abdān wa 'l-anfus* [Sustenance for Body and Soul]. Facsimile ed. F. Sezgin. Frankfurt.

BAYHAQĪ, ABU 'L-FADL. 1969. *Tārīkh-i Mas^cūdī*. Russian tr. A. K. Arends, *Istoriya Mas^cuda 1030–1041*. 2nd ed. Moscow.

BĪNISH, T. (ed.).1371/1992. *Si risāla-i fārsī dar mūsīqī* [Three Persian Treatises on Music]. Tehran.

AL-BĪRŪNĪ, ABU 'L-RAYHĀN. 1957. *Izbrannye proizvedenia*. Russian tr. Tashkent.

DĀNISHPAZHŪH, M. T. (ed.). 1344/1965. Risāla dar mūsīqī az Muhammad ibn Mahmūd ibn Muhammad Nīshābūrī [The Treatise on Music by Muhammad b. Mahmud b. Muhammad Nīshābūrī]. In: M. Mīnuwī (ed.), *Haftād sālagī-i Farrukh*, pp. 99–103. Tehran.

D'ERLANGER, R. 1930. *La musique arabe*, Vol. 1: *Al-Fārābī. Grand traité de la musique*. Paris.

AL-FĀRĀBĪ, ABŪ NASR MUHAMMAD B. MUHAMMAD. 1967. *Kitāb al-Mūsīqī al-kabīr*. Cairo.

IBN BATTŪTA. 1971. *Rihla*. English tr. H. A. R. Gibb and C. F. Beckingham, *The Travels of Ibn Battuta*, Vol. 3. Cambridge.

IBN FARĪGHŪN. 1985. *Jawāmi^c al-^culūm* [Compendium of Sciences]. Facsimile ed. F. Sezgin. Frankfurt.

IBN KHURRADĀDHBIH. 1961. *Mukhtār min Kitāb al-Lahw wa 'l-malāhī*. Beirut.

IBN ZAYLA, ABŪ MANSŪR AL-HUSAYN. 1964. *Al-Kāfī fi 'l-mūsīqī* [The Sufficient (Book) About Music]. Ed. Z. Yūsuf. Cairo.

AL-KĀSHGHARĪ, MAHMŪD. 1939–41. *Dīwān lughāt al-turk*. Turkish tr. B. Atalay, *Divanü lûgat-it-türk tercümesi*. Ankara. English tr. R. Dankoff and J. Kelly, *Compendium of the Turkic Dialects*. Cambridge, Mass., 1982–4.

KAY KĀWŪS B. ISKANDAR. 1951. *Qābūs-nāma*. English tr. R. Levy. London. Uzbek Turkish tr. Tashkent, 1986.

AL-KHWĀRAZMĪ, ABŪ ^cABD ALLĀH MUHAMMAD IBN AHMAD. 1895. *Mafātīh al-^culūm*. Ed. G. van Vloten. Leiden.

AL-MARĀGHĪ, ^cABD AL-QĀDIR IBN GHAYBĪ. 1344/1965. *Maqāsid al-alhān* [Purports of Melodies]. T. Bīnish (ed.). Tehran.

——. 1366/1987. *Jāmi^c al-alhān* [The Comprehensive (Book) on Music]. T. Bīnish (ed.). Tehran.

——. 1370/1991. *Sharh-i Adwār (bā matn-i Adwār wa-zawā'id al-fawā'id)* [Commentary on (al-Urmawī's) Book of Cycles]. T. Bīnish (ed.). Tehran.

——. 1372/1993. *Jāmi^c al-alhān. Khātima* [The Comprehensive (Book) on Music. Epilogue]. T. Bīnish (ed.). Tehran.

NARSHAKHĪ. 1954. *Tārīkh-i Bukhārā*. English tr. and commentary R. N. Frye, *The History of Bukhara*. Cambridge, Mass.

^cUMAR KHAYYĀM. 1990. *Nawrūz-nāma*. Uzbek Turkish tr. Tashkent.

AL-URMAWĪ, SAFĪ AL-DĪN.1984. *Kitāb al-Adwār. Book on the Cyclic Forms of Musical Modes*. Facsimile ed. F. Sezgin. Frankfurt.

YŪSUF, Z. (ed.). 1962. *Mu'allafāt al-Kindī al-mūsīqiyya* [The Musical Writings of al-Kindī]. Baghdad.

YŪSUFĪ, G. H. 1362/1983. *Guzīda-yi Qābūsnāma* [Selections from the Qābūs-nāma]. Tehran.

2. Studies

AVDEIEVA, L. 1975. *Introductory Essay to 'Khorezmskiy tanets' by R. Karimova.* Tashkent.

BATTESTI, T. L.; KAZEMAINI, K. 1968. Le zour xâneh. Gymnase traditionnel persan. *Objets et Mondes*, Vol. 8, No. 37, pp. 177–204. Paris.

BEAL, S. (tr.). 1969. *Hiuen Tsang (A.D. 629): Buddhist Records of the Western World.* Delhi.

BELENITSKY, A. M. 1946. Istoricheskaya topografica Gerata XV v. In: *ʿAlī Shīr Nawāʾī Collective Volume.* Moscow/Leningrad.

BODROGLIGETI, A. J. E. 1987. A Masterpiece of Central Asian Turkic Satire: Aḥmadī's 'A Contest of String Instruments'. *UAJ*, Vol. 59, pp. 55–88.

BOYLAN, I. R. 1990. *Traditsionannaya muzyka arabskogo Vostoka.* Moscow.

BUSSAGLI, M. 1963. *Painting of Central Asia.* Geneva.

CHANG SHUHONG; LI CHENGXIAN. 1983. *The Flying Devis of Dunhuang.* English tr. Li Rongxi. New York.

CZEKANOWSKA, A. 1984. Kjuj or Maqam: Towards an Extension of the Concept of Maqam. In: C. Ahrens, R. M. Brandl and F. Hoerburger (eds.), *'Weine, meine Laute . . .' Gedenkschrift Kurt Reinhard*, pp. 89–103. Laaber.

CZUMA, S. J. 1985. *Kushan Sculpture: Images from Early India.* Cleveland.

DOERFER, G. 1963–75. *Türkische und mongolische Elemente im Neupersischen.* Wiesbaden. 4 vols.

DZHUMAEV, A. B. 1984. Traktat o muzyke Mukhammada Nishapuri. *Obshchestvennye nauki v Uzbekistane*, No. 1, pp. 44–50. Tashkent.

——. 1992. Obshchestvennoe polozhenie muzykanta na srednevekovom Vostoke. *Muzykal'noye, teatral'noye iskusstvo i fol'klor.* Tashkent.

FARMER, H. G. 1928. Ibn Khurdādhbih on Musical Instruments. *JRAS*, pp. 509–18.

——. 1939. An Outline History of Music and Musical Theory. In: A. U. Pope and P. Ackermann (eds.), *A Survey of Persian Art from Prehistoric Times to the Present*, Vol. 6, pp. 2783–2804. London.

——. 1962. ʿAbdalqādir ibn Ġaibī on Instruments of Music. *Oriens*, Vol. 15, pp. 242–8. Leiden.

FONG, M. H. 1987. T'ang Line-Engraved Stone Reliefs from Shensi. *Ars Orientalis*, Vol. 17, pp. 41–71. Ann Arbor, Mich.

FRANCFORT, H.-P. 1979. Les palettes du Gandhāra. *MDAFA*, Vol. 23.

FUKAI, S.; SUGIYAMA, J.; KIMATA, K.; TANABE, K.; HORIUCHI, B. 1972. *Taq-i Bustan*, Vol. 1. Tokyo.

HAYASHI, K.; KISHIBE, S.; TAKI, R.; SHIBA, S. 1967. *Shōsōin no gakki* [Musical Instruments in the Shosoin]. Tokyo.

HOWARD, A. F. 1991. In Support of a New Chronology for the Kizil Mural Paintings. *Archives of Asian Art*, Vol. 44, pp. 68–83. New York.

HYE-KERKDAL, K. J. 1961. Tanz im alten China. *Archiv für Völkerkunde*, Vol. 16, pp. 31–48. Vienna.

ISHAQUE, M. 1950. *Four Eminent Poetesses of Iran.* Calcutta.

JENKINS, J.; OLSEN, P. R. 1976. *Music and Musical Instruments in the World of Islam.* London. (World of Islam Festival, 1976.)

JUNG, A. 1989. *Quellen der traditionellen Kunstmusik der Usbeken und Tadshiken Mittelasiens.* Hamburg.

KAROMATOV, F. M.; MEŠKERIS, V. A.; VYZGO, T. S. 1987. *Mittelasien. Musikgeschichte in Bildern.* Leipzig.

KAUFMANN, W. 1981. *Altindien.* Leipzig.

KILICHEV, T. 1988. *Khwārazm khalq teatri.* Tashkent.

LAWERGREN, B. 1990. The Ancient Harp from Pazyryk. *Beiträge zur allgemeinen und vergleichenden Archäologie*, Vols. 9/10, pp. 111–18. Bonn.

——. 1994. Buddha as a Musician. *Artibus Asiae.* Vol. 54, pp. 226-240. Ascona.

——. 1996*a*. *Harfe.* In: *Die Musik in Geschichte und Gegenwart*, Vol. 2, pp. 39–62. Kassel/Stuttgart.

——. 1996*b*. The Spread of Harps Between the Near and Far East During the First Millennium A.D.: Evidence of Buddhist Musical Cultures on the Silk Road. *Silk Road Art and Archaeology*, Vol. 4, pp. 233–75. Kamakura.

LIU MAU-TSAI. 1969. Kutscha und seine Beziehungen zu China von 2. Jh. v. bis zum 6. Jh. *Asiatische Forschungen*, Vol. 27. Wiesbaden.

MAHLER, J. G. 1959. The Westerners among the Figurines of the T'ang Dynasty of China. In: *Serie Orientale*, Vol. 20. Rome.

MALLĀH, H. A. 1363/1984. *Manūchihrī-i Dāmghānī wa mūsīqī* [Manuchihri Dāmghānī and Music]. Tehran.

MEZ, A. 1922. *Die Renaissance des Islams.* Heidelberg. English tr., *The Renaissance of Islam.* Patna, 1937. Russian tr., *Musul'manskiy renessans.* Moscow, 1973.

MUKHAMBETOVA, A. 1989. Kyu and Makom. In: J. Elsner (ed.), *Maqam – Raga – Zeilenmelodik*, pp. 216–47. Berlin.

NEUBAUER, E. 1969. Musik zur Mongolenzeit in Iran und den angrenzenden Ländern, I: Schwerpunkte des musikalischen Lebens und namentlich bekannte Musiker. *Isl.*, Vol. 45, No. 3, pp. 233–260.

NIZĀMĪ ᶜARŪDĪ SAMARQANDĪ. 1328/1910. *Chahār maqāla* [Four Discourses]. Ed. M. M. Qazwini. Leiden/London.

PLAKHOV, Yu. 1988. *Khudozhestvenniy konon v sisteme profesional'noy vostochnoy monodii.* Tashkent.

PŪRJAWĀDĪ, A. H. 1374/1995. Risāla-i mūsīqī-yi Muḥammad ibn Maḥmūd ibn Muḥammad Nīshābūrī. *Maᶜārif*, Vol. 12, No. 1–2, pp. 32–70. Tehran.

SACHS, C. 1940. *The History of Musical Instruments.* New York. Repr. 1977. London.

SHILOAH, A. 1972. Ibn Hindū, le médecin et la musique. *IOS*, Vol. 2, pp. 447–62.

SIRÉN, O. 1956. *Chinese Painting, Leading Masters and Principles.* London.

TURAN, O. 1965. *Selçuklular tarihi ve Türk-Islâm medeniyeti.* Ankara.

WRIGHT, O. 1978. *The Modal System of Arab and Persian Music A.D. 1250–1300.* Oxford.

——. 1992. *Words Without Songs. A Musicological Study of an Early Ottoman Anthology and its Precursors.* London.

——. 1996. On the Concept of a 'Timurid Music'. *Oriente Moderno*, Vol. 15, pp. 665–81.

YAO SHIHONG. 1983. Musical Instruments and Dancing Depicted as they Appear in Wall Paintings at the Kizil Grottoes. *Kijiru sekkutsu*, Vol. 2, pp. 237–57. Tokyo.

Glossary

adab (polite culture, belles-lettres)
adhān (the Muslim call to prayer)
al-ʿadl wa 'l-tawhīd (the justice and unity of God)
ahl al-dhimma ('People of the Book', essentially Jews, Christians and Zoroastrians)
aiwān (arched portal, open hall, chamber open at the front)
ʿajam (non-Arabs)
ʿālim see *ʿulamā'*
andarz or *pand* (in Persian, advice, counsel)
ʿard (military review)
arg or *kuhandiz* (in Persian, fortified citadel)
ʿarūd (metrics, prosody)
as'hāb al-hadīth (partisans of tradition)
as'hāb al-ra'y (partisans of speculative opinion)
asrār, sing. *sirr* (secrets)
ātashkada (fire temple)
ayalghu (in Mongolian, song, melody)
aymak (province in Mongolian administrative terminology)
āzādagān (free citizenry, warriors)

bakāwūl (organizer of military and sporting contests and entertainment)
bakhsh (administrative subdivision in Persia, county; by extension, a subsection of a book)
bakhshi (Uighur scribe)
bakhshī (story-teller)
bāng (in music, voice, sound)
baqā' (eternity)
barbat see *rūd*
bayram (festival)
bayt (poetic couplet)
Bayt al-Hikma (House of Wisdom)
bhakti (in Hindu society, devotional activity addressed to God)
bīrūn (in Persian, suburb); see also *rabad*
btsan-po (in Tibetan, king)
burj (tower)

chahār-kham (a type of bow)
chang (in Persian, vertical angular harp)
chār-bāgh (enclosed, rectangular garden)
chār-tāq (square, domed structure with four or two arched doorways on the axes)
charkh (in Persian, water wheel)
charkhīdan (act of devotional, circular dancing among Sufis)
chawgān (polo)

dabīr (teacher, scribe)
dabīristān (higher secular school)
dabistān (elementary school)
dār al-imārā (government headquarters)
dār al-Islām (Abode of Islam)
dār al-shirk (the land of polytheism)
darbār (court)
dargāh (royal court and, by extension, the complex round a saint's tomb)
dars-khāna (lecture room or hall)
dastān (in Persian, tale, story; in Turkish, epic tale, heroic poem)

deva (Hindu deity)
dhikr (in Sufism, the ceremony of recitation of the Divine Names)
dihliz (entrance portal and vestibule)
dihqān (in earlier Islamic usage, landowner)
dīn (religion in Islam)
dīwān (government department; collection of poems)
Dīwān-i Āb (Water Department)
Dīwān-i ʿArd (Department of the Army)
Dīwān al-Inshā' (Department of Correspondence, Chancery)
duhul (in Arabic, drum)

fanā' (annihilation, absorption into God)
faqīh (Islamic lawyer; legal expert)
farhang (dictionary of the Persian language)
fatwā (legal opinion)
fiqh (Islamic law or jurisprudence)
fitna (disorder, civil warfare)
furūʿ al-fiqh (branches or ramifications of jurisprudence)

ganch (gypsum, plaster)
garmāb (bath)
ghazal (lyric poetry)
ghāzī (warrior or fighter for the faith)
girih (geometric designs forming a knot)
gūr-khāna (shrine, tomb; see also *mazār*
guzār (in Persian, lane); see also *mahall*

habsiyya (prison poem)
hadīth (Islamic tradition)
hāfiz (one who knows the Qur'an by heart)
hākim (governor)
haqīqa (divine truth, reality)
Hatha-yoga ('yoga of force')
hawz (water cistern, pond, reservoir)
hazīra (enclosed area, such as a complex around a courtyard)
hisāb (arithmetical calculation)
hisār (fortified place, tower, hence inner fortified city)
hiyal, sing. *hīla* (legal devices or fictions)
hujra (room or cell)
hukm (temporal jurisdiction)

ʿĪd al-Adhā (the Feast of Sacrifice)
ʿĪd al-Fitr (festival at the end of Ramadan)
ʿīdgāh (open prayer ground)
idrāk ('apprehension' or 'grasp' in philosophy)
ijmaʿ (consensus of the Muslim community)
ijtihād (the exertion of effort in resolving religious and legal problems)
ikhtiyār (free choice)
ʿilal al-hadīth (causes, occasions of the traditions)
ʿilm al-akhlāq (moral and ethical sciences)
al-ʿilm al-ilāhī (divine science, theology)
ʿilm al-lugha (science of language)
ʿilm al-rijāl (study of the persons in the *isnāds*)
ʿilm al-riyāda (mathematics)
ʿilm al-siyāsa (science of government)
ʿilm al-tabīʿa (physics)
ʿimārat (building, especially for charitable purposes)
iqlīm (in early Islamic geographic terminology, province)
iqtāʿ (land grant, revenue assignment); see also *soyurghal*
iʿrāb (study of desinences in Arabic grammar)
Ishrāq (Illuminationism)
isnād (chain of transmission or authority supporting a *hadīth*)
iʿtiqād (exposition of belief, credo)

jamʿ (literary collection)
jamāʿa (Islamic community)
jāmiʿ or *masjid-i jumʿa* (congregational or Friday mosque)

jawhar (in philosophy, substance)
jihād (holy war)
jizya (poll tax on non-Muslims)
juz' (part of a *hadīth* collection)

kāfir (infidel; unbeliever)
kalām (dialectical theology)
kārfarmān (folk theatre producer)
kārīz (in Persian, subterranean irrigation channel); see also *qanāt*
kāshī (tile)
Khamsa (Quintet of poetical works)
khānaqāh (hospice; dervish convent)
kharāj or *ʿushr* (land tax)
khāss (crown domains)
khāss hājib (chamberlain of the royal court)
khatīb (preacher at the Muslim worship)
khūrjīn (saddle bags)
kitāb-khāna (library)
kurultay (assembly of the military chiefs and nobles of the tribes among the Mongols and Turco-Mongols)
kushk (castle, pavilion)
kusti (sash)

lugha (language, dialect, grammatical reading)

maddāh (eulogist, rhapsodist)
madh'hab (school of Islamic law)
madīna (in Arabic, inner town); see also *shahristān*
madrasa (college for higher instruction in the religious and other sciences)
mahall (in Arabic, quarter of a town); see also *guzār*
maktab (elementary school)
mamlakat al-Islām (the Islamic lands)
manaschi (Kyrgyz bards)
mantiq (logic)
maqāla (discourse, treatise)
maqām (musical mode; spiritual stage for Sufis)
maqsūra (screened-off enclosure in a mosque)
maʿrifa (gnosis)
marthiya (elegy)
mas'ala, pl. *masā'il* (formal question or query in religious and philosophical disputation)
masjid-i jumʿa see *jāmiʿ*
maskhara (buffoon, clown)
math (Hindu monastery)
mathnawī (poem in couplets)
matn (subject-matter of a *hadīth*)
mawlā (freedman or client of non-Arab origin)
Mawlūd (the Prophet Muhammad's birthday)
mazār (burial shrine, tomb); see also *gūr-khāna*
mi'dhana see *minār*
mihmān-khāna (reception room)
Mihna (inquisition to enforce a particular theological view in the ninth-century ʿAbbasid caliphate)
mihrāb (prayer niche)
Mihragān (Iranian autumn festival)
mihtar (court military band), see also *nawba*
minār or *mi'dhana* (minaret)
minbar (stepped pulpit)
mīr-āb (official in charge of water distribution)
mirʿāj or *isrā'* (the Prophet's miraculous night journey)
mōbad (Zoroastrian high priest in pre-Islamic and early Islamic Iran)
mokṣa (salvation in Buddhism)
mudarris (lecturer)
muhaddith (traditionist)
muhandis (engineer-architect)
muhtasib (market inspector)
mulk (power, authority, dominion; possession)
mulk-i dīwān (state land)
mu'min (Muslim believer)
munājāt (prayer, especially private prayer)
munāzara (debate, disputation, disputatory poem)

muqātil, pl. *muqātila* (warrior)
musallā (open space for worship; oratory)
musammat (stanzaic poem)
musannaf (*hadīth* collection arranged in chapters)
mūsīqār (pan-pipes)
musnad (collection of *hadīth*s organized on the basis of the first authority in the chain of guarantors above the Prophet)
mutakallim (speculative theologian)
mutrib (musician, singer, artiste)

nadīm (boon-companion of a ruler prince)
namāzgāh (open space for the Muslim worship)
naqqāra, pl. *naqqārāt* (small kettledrum)
nasīhat al-mulūk ('advice and counsels for kings')
naskh (variety of Arabic script)
nastaᶜlīq (sloping style of script developed in the fifteenth century for writing Persian)
nawba (four-part 'suite' in music; court military band); see also *mihtar*
Nawrūz (Iranian New Year spring festival)
nāy (in Persian, flute)
nazīra (response, complement, in literary composition)
nisba (gentilic name)

ordu or *urdu* (military encampment of Mongol and Turkish rulers)

panjara (shaped grille)
pīr (Persian 'spiritual leader', the equivalent of Arabic *shaykh*)
pisé (rammed earth, unbaked brick)
prajnā (Buddhist wisdom, insight into the true nature of things)

qadamgāh (place where prophets and saints stayed and left traces)
qādī (judge)
qalᶜa (citadel, fortress)
qanāt (in Arabic, subterranean irrigation channel); see also *kārīz*
qārī (professional Qur'an-reciter)
qārī-khāna (school for Qur'an-reciters)
qasīda (ode or eulogistic poem)
qāss (popular preacher, story-teller)
qawwāl (itinerant poet; singer; author-performer)
qibla (the direction of worship towards Mecca)
qisas, sing. *qissa* (sermons or narratives)
qishlaq (warm region, winter pastures of nomads)
qissagūy (reciter; story-teller)
qitᶜa (poetic fragment)
qiyās (reasoning by analogy)
qughur (in Mongolian, fiddle)

rabad (in Arabic, suburb); see also *bīrūn*
ra'īs, pl. *ru'asā'* (headman, town chief, mayor)
raᶜiyya ('sheep driven to pasture', hence 'subjects')
raqs (dance)
ra'y (personal opinion or judgement)
ribāt (defence post; hospice)
rīgistān (town square)
riqāᶜ (cursive form of script typically used for chancellery documents)
risāla (treatise, epistle)
rubāᶜī, pl. *rubāᶜiyyāt* (in Persian, rhymed quatrain)
rūd or *barbat* (in Persian, lute)
rustāq (district, in Persian administrative terminology)
ru'yā (beatific vision)

saᶜāda (happiness)
Sada (Iranian winter festival)
sadr, pl. *sudūr* (eminence, prominent religious leader)
sagan (stepped tombstone)
Sahīh ('sound' collection of traditions)
sahn (courtyard)

saltana (power)
sampradāy (devotional sect in Hindu society)
santūr (box zither)
sāqiya (machine for irrigation)
sardāb (cool subterranean dwelling or room)
satiguru (True Teacher in Hindu society)
saylgāh (place of public assembly)
sayyid (descendant of the Prophet Muhammad)
shādūf (water-raising device)
shahr-i bīrūn (outer town)
shahr-i darūn (inner town)
shahristān (in Persian, inner town); see also *madīna*
shahriyār-arg (town with a citadel)
sharh (commentary on a written text)
sharīʿa (religious law)
shaykh (head man, tribal leader; holy man in Sufism)
shaykh al-islām (spiritual head of the Islamic community)
shihna (military governor)
shurūt, sing. *shart* (legal conditions)
siddhi (magical power in Hinduism)
sihāh (reliable collection of 'sound' traditions)
sitra (screen, veil)
soyurghal (land grant, lit. 'gift'); see also *iqtāʿ*
sunna, pl. *sunan* (lit. 'custom')

tadbīr al-mulūk (lit. 'how kings should manage their affairs', advice literature)
tadrīs (teaching)
tafsīr (Qur'anic commentary, literal exegesis)
tamāshāgāh (arena for public spectacles)
tamghā (in Turco-Mongol society, tribal emblem)
tanbūr or *tunbūr* (two-stringed cordophone)
taqlīd (the unthinking acceptance of tradition in religious and other spheres)
tasawwuf (Sufism or the mystical path in Islam)
tatabbuʿ (poem following on a previous model)
ta'wīl (spiritual exegesis)
thuluth (variety of Arabic script with two- or three-tiered ligatures and harmoniously proportioned vertical letters)
tirāz (elaborate decorative embroidery on robes of honour and other luxury clothing)
tūj (triumphant celebration)
tūshak (floor coverings)

ʿūd (lute)
ʿulamā', sing. *ʿālim* (scholars learned in the Islamic legal and theological sciences)
ulus (familial or tribal domain in Mongolian society)
ʿushr see *kharāj*
ustād (master in the field of music, poetry, etc., e.g. of a Sufi brotherhood, trade guild, etc.)

vihāra (Buddhist monastery)

wāʿiz (preacher)
waqf (charitable endowment)
waqfiyya or *waqf-nāma* (deed establishing a *waqf*; deed of endowment)
wasī (designated successor to the Prophet)
wazīr (vizier, or chief minister)

yakhtang (ice-house)

zāhid, pl. *zuhhād* (ascetic)
zakāt (alms-tax)
zarāfat (wittiness, subtlety)

zāwiya (religious foundation of a quasi-monastic type)
zīj (astronomical work containing tables)
zindīq (originally, adherent of Mani; later, free-thinker, heretic, in general)
ziyāda (additional piece or structure)
ziyārat-khāna (shrine, burial-place of a holy man visited by pilgrims)
zulla (prayer chamber)
zūrkhāna (traditional Persian gymnasium for wrestling, etc.)

INDEX

The multi-volume *History of Civilizations of Central Asia* is the first attempt to present a comprehensive picture of this subject. The publication of this work falls well within UNESCO's terms of reference since the underlying research was conducted by a distinguished international team of specialists which for many years laboured in harmony at the task of presenting to a wider public the civilizations of this vast area located at the heart of the Eurasian continent. The volumes will reveal the cultures that flourished and vanished in this area, from the dawn of civilization to the present time. Only a few names such as those of Samarkand, Bukhara or Khiva, are familiar to a wider public; eminent specialists, many of them native to the region, now lift the curtain to reveal a richer, more varied civilization. To a great extent, the history of the ancient and medieval world was shaped by the movements of peoples in this heartland of Eurasia, stretching from the Caspian Sea in the west to the borders of China proper in the east.

Volume IV, Part One, of this *History* covered the dynastic, political and military history of Central Asia. Part Two covers the cultural achievements of the various peoples of this immense region: arts and crafts, languages, scripts, literature, architecture, music, science, medicine and technology. The borders of the Central Asian heartland of steppes, desert and forests fluctuated over the period 750–1500. At first, the Islamic faith and culture had to compete with older established faiths in Central Asia such as Zoroastrianism, Manichaeism, Christianity and Buddhism. For over four centuries, the advance of Islam was gradual, but it was to have far-reaching consequences as it extended north-eastwards. During the fourteenth and fifteenth centuries, Islam and Islamic culture achieved dominance over all its rivals in Transoxania and the area to its north and also established a firm footing in north-western India and southwards through the subcontinent. Thus arose a unique moment in history for the interchange of ideas and aspects of material culture, in which Central Asia acted as an intermediary. The faiths of the West and the South, of the Near East, of the Iranian world and the Indian, now had an impact on the lands further east and north. In the reverse direction, commerce, highly skilled crafts such as ceramics, and technological achievements such as silk production and wood-block printing, spread from China to the Islamic world and thence to Europe.

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Cover: One of the figures on the rim of a twelfth-century Persian lustre-ware bowl, outside diameter 35 cm, Rayy or Kashan (Iran). Courtesy of M. I. Mochiri